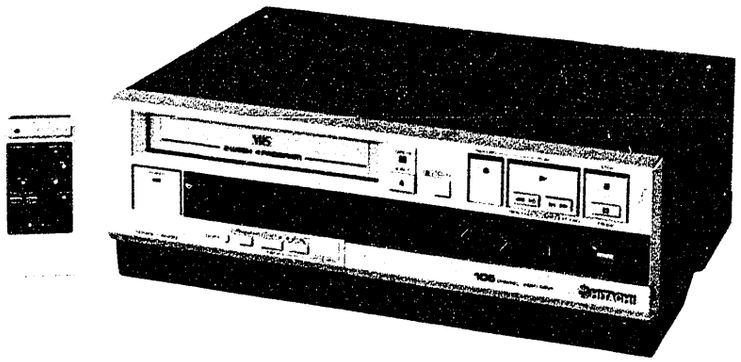
HITACHI

SERVICE MANUAL

TK | No. 2089E

VT-34A

Technical Data



VHS

THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER.
FOR PROPER OPERATION, ONLY THE VHS TYPE CASSETTE MUST BE USED.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

February 1984 **TOKAI WORKS**

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SAFETY PRECAUTION

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions, and safety related notes located on or inside the cabinet and on the chassis.

1. When replacing a chassis in the instrument, all the protective devices must be put back in place, such as barriers, non-metallic knobs, adjustment and compartment convershields, isolation resistor-capacity, etc.
2. When service is required, observe the original lead dress. Extra precaution should be taken no assure correct lead dress in the high voltage circuit.
3. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
4. Before returning a instrument to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently defeated during servicing.

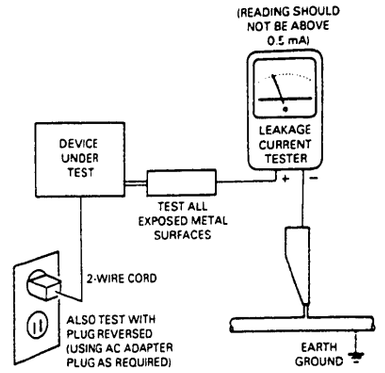
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the AC 120V, 60 Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to exposed metal part (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3MΩ and a maximum resistor reading of 5 MΩ. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed meter parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into a AC 120V, 60 Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "Leakage Current Tester", Measure for current from all exposed metal parts of the cabinet (antennas, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5 mA.


(READING SHOULD NOT BE ABOVE 0.5 mA)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE RECEIVER TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by making with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service manual, may create shock, fire or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

FOR CANADA

CAUTION AGAINST FUSE REPLACEMENT

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND SAME RATING FUSE IN ACCORDANCE WITH THE FUSE SYMBOL LABEL.

The following is the indication of the fuse symbol label which is affixed adjacent to the fuse in the equipment.

*Example

This symbol indicates Fast Operating Type 2A, 250V Fuse.

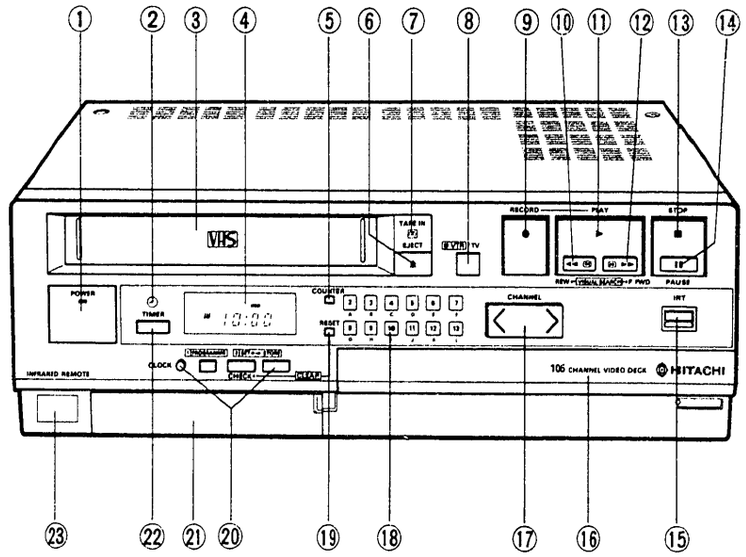
COMPARISON WITH CONVENTIONAL MODEL

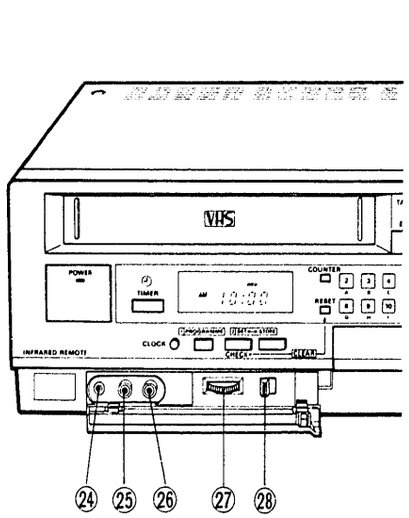
Item			VT-34A	VT-33A	VT-19A	VT-18A	VT-16A
Video head			2-head	2-head	4-head Normal: 2 Trick: 2	4-head Normal: 2 Trick: 2	2-head
Recording tape speed			3 modes (SP/LP/EP)	3 modes (SP/LP/EP)	3 modes (SP/LP/EP)	3 modes (SP/LP/EP)	3 modes (SP/LP/EP)
Play tape speed	Visual Search	SP	Provided	Provided	Provided	Provided	Provided
		EP	Provided	Provided	Provided	Provided	Provided
	Still Picture	SP	Provided	Provided	Provided	Provided	Provided
		EP	Provided	Provided	Provided	Provided	Provided
Tuner			12 channel (Electronic lock) (Up/Down selection) (CATV)	12 channel (Electronic lock) (Up/Down selection)	12 channel (Electronic lock)	12 channel (Electronic lock)	12 channel (Electronic lock)
Timer			4 programs/ 2 week	4 programs/ 2 week	6 programs/ 2 week	6 programs/ 2 week	6 programs/ 2 week
Remote control (number of buttons)			12-mode wireless (9 buttons)	10-mode wired (7 buttons)	12-mode wireless (9 buttons)	11-mode wireless (8 buttons)	9-mode wireless (6 buttons)
Indicator	Operation Switch	Power, Timer, Record, Play, Pause	Provided	Provided	Provided	Provided	Provided
		Stop, F. FWD Rewind	Provided	Provided	Provided	Provided	Provided
	Channel Preset	Channels Selected	12	12	14	14	12
		Programmed	Provided	Provided	Not provided	Not provided	Not provided
Audio Dub			Not provided	Not provided	Provided	Not provided	Not provided
Memory Counter Switch			Not provided	Not provided	Provided	Provided	Provided
Heater			Provided	Provided	Provided	Provided	Provided
Dew Sensor			Not provided	Not provided	Provided	Not provided	Not provided
Pause 5 Minute			Provided	Provided	Provided	Provided	Provided
IRT (Instant Recording Timer)			Provided	Provided	Provided	Provided	Provided
CATV			Provided	Not provided	Provided	Provided	Not provided
Timer Back Up			Not provided	Not provided	3 second	3 second	Not provided
Frame Advance			Not provided	Not provided	Possible with remote control	Possible with remote control	Not provided
Fast			Not provided	Not provided	Possible with remote control	Possible with remote control	Not provided
Picture Control			Not provided	Not provided	Provided	Provided	Not provided
Stereo PB/REC			Not provided	Not provided	Provided	Not provided	Not provided
Dolby NR			Not provided	Not provided	Provided B-tye	Not provided	Not provided
Cassette Loading			Auto Front Loading	Auto Front Loading	Auto Front Loading	Auto Front Loading	Auto Front Loading
Tape in Indicator Light			Provided	Provided	Provided	Provided	Provided

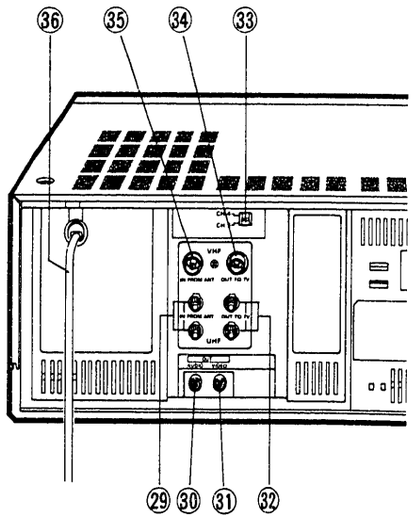
SPECIFICATIONS

Recording:	Rotary two head Helical Scan Azimuth Recording
Video:	NTSC Color EIA Standard
Cassette:	VHS Type
Heads	2 video heads for SP/LP/EP 1 Full track audio/video erase head 1 Combination head for control track, audio erase and audio record/play (3 heads/single housing)
Tape Speed	33.35 mm/sec (SP), 16.67 mm/sec (LP), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
RF Output:	Channel 3 or Channel 4
RF Input:	VHF 75 ohm, UHF 300 ohm
Tuning Range:	VHF LOW, CH2–6 (54 MHz–88 MHz) VHF HIGH, CH7–13 (174 MHz–216 MHz) VHF MID. CH A–I (120MHz–174MHz) CATV VHF SUPER CH J–W (216 MHz–300 MHz) CATV UHF CHANNELS, 14–83 (470 MHz–890 MHz)
Video Input:	0.5–2 Vp-p 75 ohm Unbalanced
Video Output:	1Vp-p 75 ohm Unbalanced
Audio Input:	316 mV rms (–7.8 dB) 100 kohm
Audio Output:	316 mV rms (–7.8 dB) 600 ohm
Video Recording S/N:	Better than 46 dB (SP), Better than 43 dB (LP), Better than 40 dB (EP)
Horizontal Resolution:	240 lines (SP), 230 lines (LP), 230 lines (EP)
Audio Response:	50 Hz–10 kHz (SP), 50 Hz–7 kHz (LP), 100 Hz–6 kHz (EP)
Audio S/N:	Better than 43 dB (SP), Better than 40 dB (LP) Better than 40 dB (EP)
Power Input:	AC 120V 60 Hz
Power Consumption:	39W Nominal
Cabinet Size:	17-1/8"(W) x 5-1/4"(H) x 11-3/4"(D) 43.5(W) x 13.3(H) x 29.9(D) cm
Weight:	17.6 lbs (8 kg)
Accessories:	1–Coaxial cable with F-type connectors 1–UHF twin lead 1–Matching transformer 300–75 ohm 1–Matching transformer 75–300 ohm 1–Infrared remote control unit 2–Batteries 1–Channel plate 1–Channel indication holder

KEY TO ILLUSTRATIONS







① **POWER SWITCH**
Turn system power on and off.

② **TIMER INDICATOR**
Will light when turning TIMER switch on after programming.

③ **CASSETTE COMPARTMENT**

④ **TIMER DISPLAY INDICATOR**
This shows the time with a 12-hour display and also shows tape position.

⑤ **CLOCK/COUNTER SELECT BUTTON**
Press to switch from clock display to counter display.

⑥ **EJECT BUTTON**
With power on, press to remove cassette. The STOP button must be pressed before "EJECT".

⑦ **TAPE-IN INDICATOR**
Lights when cassette is located in the compartment.

⑧ **VTR/TV SELECTOR**
Selects the signal to be viewed.
The VTR indicator comes on when the unit is in VTR mode and the signal received by the VTR is displayed on the TV screen. With the switch in the TV position (indicator light off) the broadcast signal is received directly by your TV set. When the VTR power is turned off, the VTR automatically switches to "TV".

⑨ **RECORD BUTTON**
Press RECORD button and while holding RECORD, press PLAY button to record.

⑩ **REWIND/VISUAL SEARCH BUTTON**
Press to start rewind.
Press this button during playback of a recorded tape. Reverse playback picture at high speed can be seen.

⑪ **PLAY BUTTON**
Press to start play.

⑫ **FAST FORWARD/VISUAL SEARCH BUTTON**
Press to activate fast forward.
Press this button during playback of a recorded tape. Forward playback picture at high speed can be seen.

⑬ **STOP BUTTON**
Press to stop tape. The STOP button must be pressed between "RECORD" and any other operation. The STOP button must be pressed before "EJECT".

⑭ **PAUSE BUTTON**
Press to pause during recording or playback.

⑮ **INSTANT RECORDING TIMER BUTTON (IRT)**
This allows unattended recording.
Timer will switch VTR off automatically at a preselected time. This is convenient when you go out during recording.

⑯ **FINE-TUNING ACCESS DOOR**
Open this door and set the channel.

⑰ **CHANNEL SELECT BUTTON**
Select the cannels you wish to view or record by pressing this button.

⑱ **CHANNEL INDICATORS**
This shows the channel number corresponding to the channel selected.

⑲ **COUNTER RESET/PROGRAM CLEAR BUTTON**
To reset counter to "0000" or to clear the programming information.

⑳ **TIMER CONTROLS**

㉑ **SECONDARY CONTROL DOOR**

㉒ **TIMER SWITCH**
Press after programming Digital Clock.

㉓ **INFRARED RAY RECEIVING SECTION**
Receives the infrared ray from remote control unit.

㉔ **CAMERA PAUSE JACK**
Connect Camera Pause cable.

㉕ **VIDEO IN**
Receives video signal from a video camera or another VTR.

㉖ **AUDIO IN**
Receives audio signals from a camera or from another VTR.

㉗ **TRACKING CONTROL KNOB**
To minimize noise in playback.

㉘ **TAPE SPEED SELECTOR**
Recording time using Cassette tape T-160:
EP: 8 hours
LP: 5.3 hours
SP: 2.6 hours
Note: Playback speed automatically corresponds with recorded speed.

㉙ **UHF ANTENNA INPUT**
Connect the UHF antenna to these terminals.

㉚ **AUDIO OUT**
For a connection to a monitor or another VTR.

㉛ **VIDEO OUT**
For connection to monitor TV.

㉜ **UHF ANTENNA OUTPUT**
Connect these terminals to the UHF antenna terminals on the back of the TV.

㉝ **RF CONVERTOR SWITCH**
Set this switch to whichever channel (CH3 or CH4) is unused in your area.

㉞ **VHF ANTENNA OUTPUT**
Connect this terminal to the VHF antenna terminal on the back of the TV.

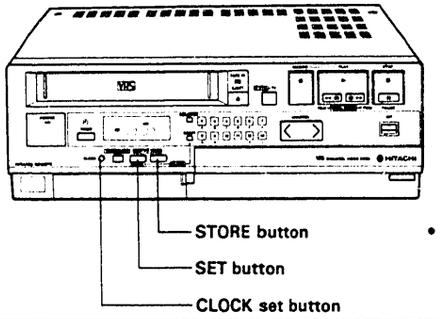
㉟ **VHF ANTENNA INPUT**
Connect the VHF antenna to this terminal.

㊱ **POWER CORD**
Connect to a 120V AC outlet.

SETTING THE TIMER

CLOCK TIME SETTING

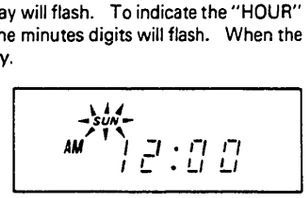
The built-in digital clock is based on a 12 hour cycle and gives you a constant readout of the time and day.



- When the Power cord is plugged in for the first time, the digital clock display flashes "SUN AM 12:00".

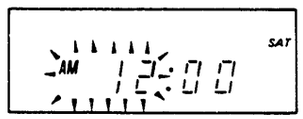
The clock is set using the CLOCK, SET and STORE buttons. The CLOCK button selects the clock setting mode. The SET button advances the Day, Hours or Minutes. The STORE button stores the Day, Hours or Minutes. After the Day is entered with STORE, the next press of the STORE button will enter the hours, and next press will enter the minutes. To indicate the "DAY" mode, the day will flash. To indicate the "HOUR" mode, the hours digits will flash. To indicate the "MINUTE" mode, the minutes digits will flash. When the STORE button is pressed, the flashing digits will be stored in memory.

❶ Press and hold the CLOCK set button while performing steps 2 through 4.
"SUN" flashes on and off and "AM 12:00" lights.



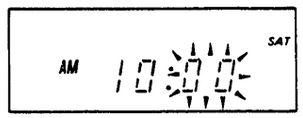
❷ Press the SET button repeatedly to select the present day of the week.
Hold the button down to advance rapidly.
When the present day of the week appears, press the STORE button. "AM 12" hour starts flashing.

For example, the diagram shows that Saturday (SAT) has been set.



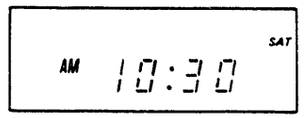
❸ Press the SET button to set the present hour.
Hold the button down to advance rapidly. Press the STORE button when the present hour appears.
"00" minutes starts flashing.

For example, the diagram shows that "AM 10" hour has been set.



❹ Press the SET button to set the minute.
Hold the button down to advance rapidly. Press the STORE button when the present minute appears.

For example, the diagram shows that "30" minutes has been set.



❺ Release the CLOCK set button.

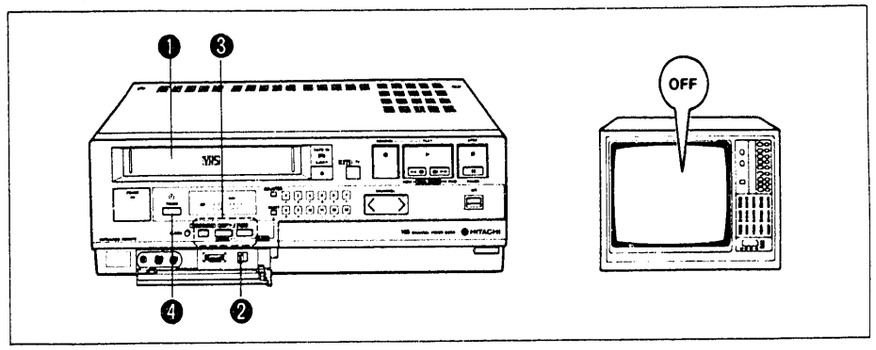
Now the clock has been set to the correct time of day.

For zero second setting, set the minutes to one minute ahead of present time and release the CLOCK set button when the exact start of the next minute is reached.

Note: If your clock display flashes "SUN AM 12:00", your home had a power failure. The time should be reset.

TIMER RECORDING (UNATTENDED RECORDING)

The programmable electronic clock/timer permits the unattended recording of up to 3 preselected programs, plus one program on the same day of each week. It can be preset up to 14 days in advance to record your favorite programs. It turns the unit on and off and changes channels automatically.



❶ Insert the Cassette.
Be sure to check that the record safety tab is not missing. If the record safety tab is missing, recording will not begin.

❷ Set the SPEED select switch to "SP", "LP" or "EP".
Note: It is recommended to set to "SP" when recording a music program.

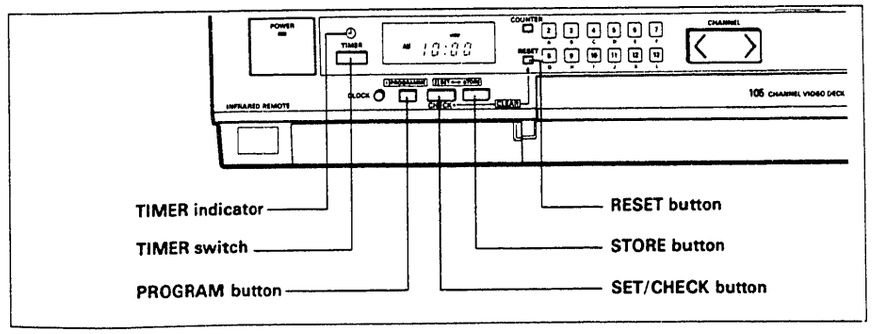
❸ Set the program timer.
"START (ON) TIME", "STOP (OFF) TIME", "DAY" etc. See next page.

❹ Set TIMER switch of video deck to ON. Now recording will begin automatically at the start time.

Note:
- It is not necessary to press PLAY and RECORD buttons.
- When the TIMER switch is on, your video deck cannot be operated manually.
- **If the record safety tab is missing, the TIMER indicator will flash to warn you.**
- If you want to stop during recording with the timer, set the TIMER switch to OFF.

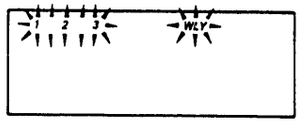
To monitor the program to be recorded
1. Turn on the TV and set the channel of your TV to CH3 or 4 (for your video channel).
2. Turn off the TIMER switch and turn on the POWER switch of the video deck.
3. Press the channel select button to set to the channel to be recorded.
4. After checking the program, turn off the TV and set the TIMER switch of the video deck to ON.

Programming the timer for unattended recording
For unattended recording the timer needs to know what **day** to make the recording, the **time to start**, the **time to stop**, and the **channel to be recorded**.



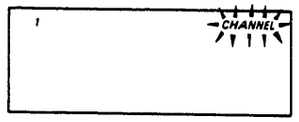
The timer is programmed using the PROGRAM, SET and STORE buttons. The PROGRAM button selects the timer programming mode. The SET button advances the Program indicators, Channel, Day, Hours or Minutes for recording. The STORE button stores them. The digits flash in sequence, so input the correct data to the flashing digits. When the STORE button is pressed, the flashing digits will be stored in memory.

❶ Press the PROGRAM button.
Program indicators (1 through 3 and WLY) flash to indicate which memory positions have not been programmed. If a memory has been programmed, its indicator will not flash.
Note: You should determine which memory positions have not been programmed before entering new programming information. New information automatically erases previous programming.

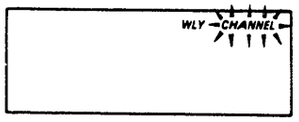


❷ Press the SET button repeatedly until the desired program indicator lights. Program indicators (1 through 3 and WLY) light, in sequence, across top of digital display. Press the STORE button when the desired program number is displayed. Letters "CHANNEL" starts flashing.

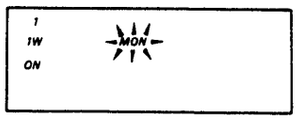
For example, diagram shows program "1" has been set.



To record on a specified day at the same time each week.
Press the SET button until the "WLY" indicator lights. Then press the STORE button.

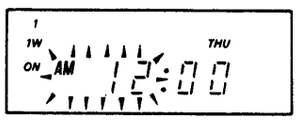


❸ Choose the channel to be recorded by pressing the SET or CHANNEL select button. Then press the STORE button.
"1W" and "ON" appear and the present day flashes.

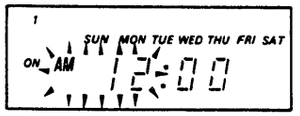


❹ Press the SET button to select the day of recording. Make sure desired Week indicator (1W or 2W) lights. Continuing forward will advance timer to Week two.
Press the STORE button after selecting the day of recording.
"AM 12:00" will appear and "AM 12" hour starts flashing.

For example, diagram shows recording on Thursday within 1 week from today.

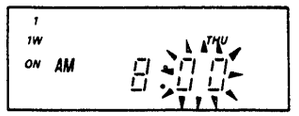


To record at the same time every day of the week:
Press the SET button until all day indicators light, then press the STORE button.



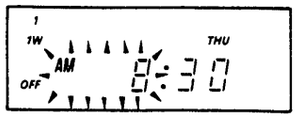
❺ Select the hour for recording to start by pressing the SET button. Hold down button to advance rapidly. Press the STORE button after selecting the hour for recording to start.
"00" minutes starts flashing.

For example, the diagram shows "AM 8" hours has been set.



❻ Select the minutes for recording to start by pressing the SET button. Hold down button to advance rapidly. Press the STORE button after selecting the minute for recording to start.
"OFF" will appear instead of "ON".
"AM 8" hour starts flashing.

For example, the diagram shows "30" minutes has been set.



❼ Select the hour and minute to stop recording in the same procedures described in steps 5 and 6. Be sure to press the STORE button after selecting the minute.

Now one programming has been completed. Display shows the start time when pressing the STORE button. After few seconds the display shows stop time, the display returns the clock time display together with letters "PROG" automatically.
"PROG" shows that timer has been programmed; it lights whenever the timer-programming is done regardless of whether the power ON/OFF. To set the next programme, repeat steps 1 through 7.

NOTE:
If a power failure occurs and the clock display flashes "SUN AM 12:00", programming information previously set is cleared. The programming information should be reset.

To clear a program

❶ Press the SET/CHECK button until desired program indicator lights. Then start time appears on the display.

❷ Press the RESET button.
The display returns the clock time display to show that the programming has been cleared. Be sure to press the RESET button while the display shows the start or stop time. The programming does not clear if the RESET button is pressed when the display returns the clock time display.

To check programming
Press the SET/CHECK button.
The program indicator "1" lights. If the program No. 1 has been already programmed, the "ON" indicator lights and the clock/timer display shows the starting time. Then the "OFF" indicator lights and the display automatically shows the time to stop recording in a few seconds with the channel number to be recorded lighting up. The display then automatically returns to the present time of day.

Programming errors
If programs overlap, the video deck will select the program with the earliest start time. When that program is over, the video deck will switch to the next program. If the start times are the same, the video deck will select the programs in numerical order.

DISASSEMBLY

1. REMOVING THE CASE

1-1. Channel preset cover (Fig. 1)

1) Open the channel preset cover and pull it in the direction of arrow (1) to remove it.

1-2. Top cover (Fig. 1)

1) Remove 2 screws.
2) Lift the rear of the top cover first and then lift the whole top cover to remove it.

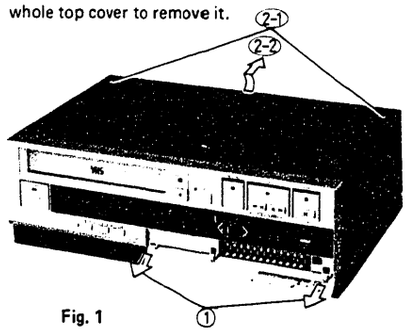


Fig. 1

1-3. Bottom cover (Fig. 2)

1) Remove 6 screws.

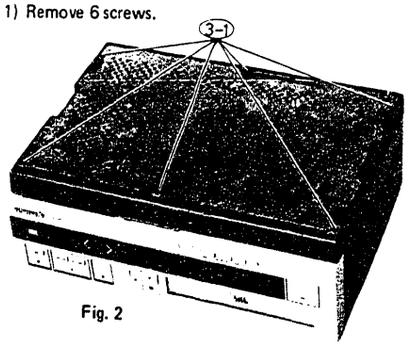


Fig. 2

1-4. Front panel (Fig. 3)

1) Remove the top cover (Item 1-2)
2) Remove 2 screws.

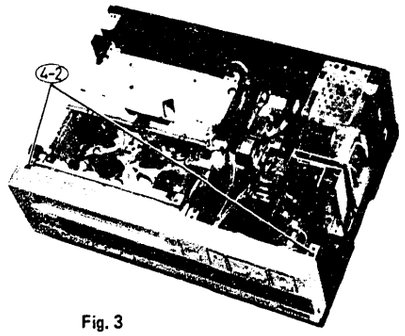


Fig. 3

1-5. Jack panel (Fig. 4)

1) Remove the bottom cover. (Item 1-3)
2) Remove the front panel. (Item 1-4)
3) Release 2 stoppers and pull it in the direction of arrow to remove it.

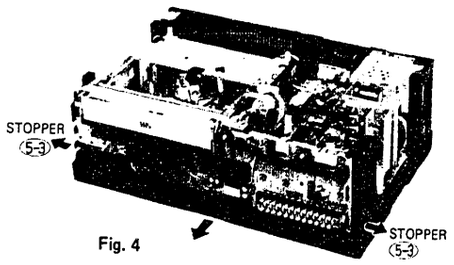


Fig. 4

2. REMOVING THE PC BOARDS

2-1. Names and locations of PC Boards.

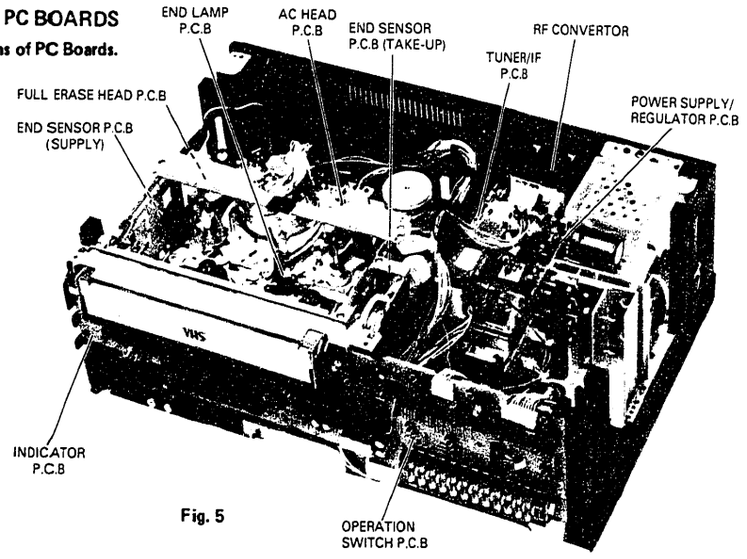


Fig. 5

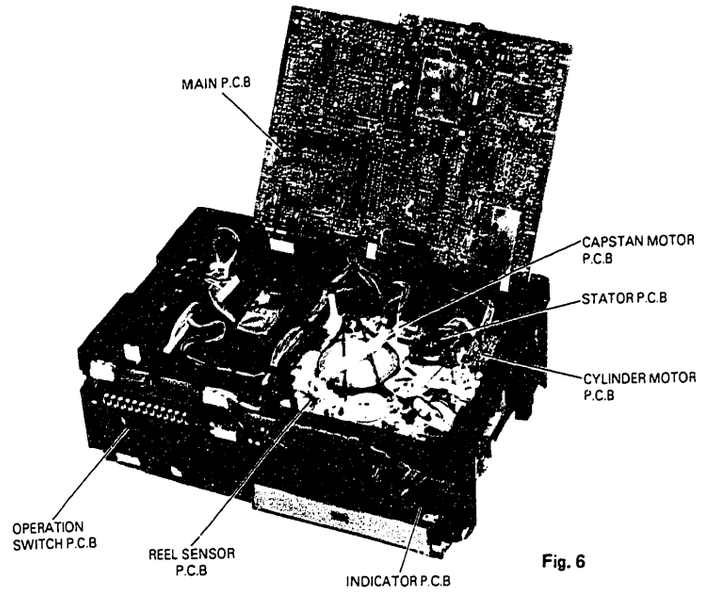


Fig. 6

2-2. Operation switch/Timer PC Board (Fig. 7)

1) Remove the top cover. (Item 1-2)
2) Remove the front panel. (Item 1-4)
3) Remove the jack panel. (Item 1-5)
4) Push up 4 stoppers in the direction of the arrow to remove the PC Board and the stoppers, and then lift the PC Board in the direction of arrow (A).

2-3. Indicator PC Board (Fig. 7)

1) Remove the top cover. (Item 1-2)
2) Remove the front panel. (Item 1-4)
3) Release the stopper to open the PC Board.

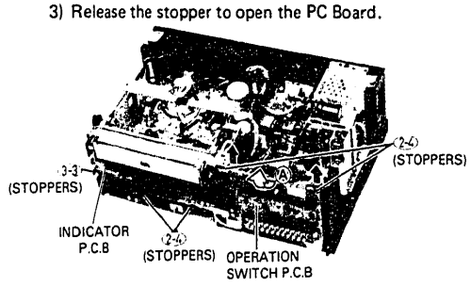


Fig. 7

2-4. RF converter (Fig. 8)

1) Remove the top cover. (Item 1-2)
2) Release 2 stoppers.

2-5. Tuner/IF PC Board (Fig. 8)

1) Remove the top cover. (Item 1-2)
2) Remove the RF converter. (Item 2-4)
3) Disconnect 2 connectors and the RF cable.
4) Remove 2 screws and then remove the tuner/IF board.

2-6. Power supply/Regulator PC Board (Fig. 8)

1) Remove the top cover. (Item 1-2)
2) Disconnect 3 connectors.
3) Remove 3 screws and the bottom cover fixing screw.

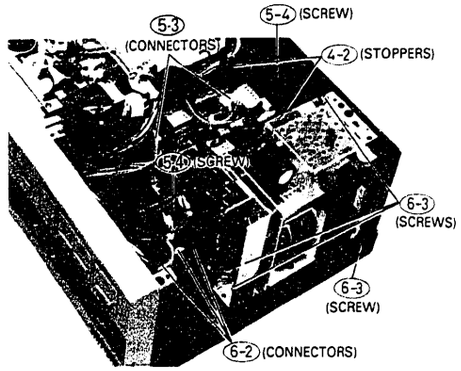


Fig. 8

2-7. Main PC Board (Fig. 9)

1) Remove the bottom cover. (Item 1-3)
2) Remove the jack panel. (Item 1-5)
3) Release 2 stoppers and remove 3 screws to lift the board in the direction of the arrow.

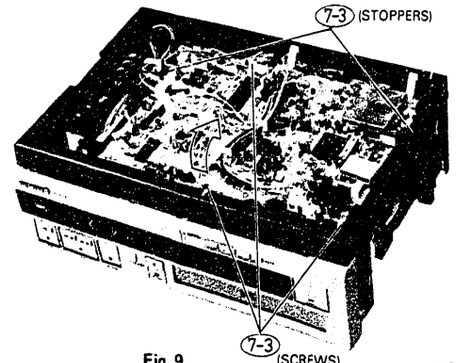
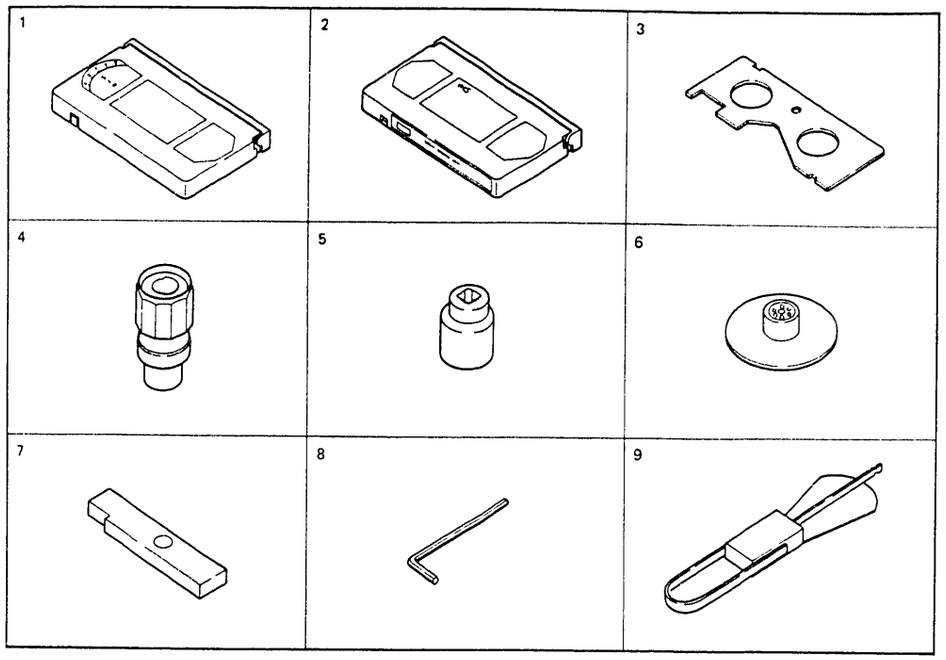


Fig. 9

CHASSIS BLOCK

SERVICING JIGS AND TOOLS



ITEM	PARTS NAME		PARTS No.
1	Back tension meter		7099004
2	Alignment tape	(NTSC)	7099046
		(PAL)	7099052
		(SECAM)	7099053
3	Height reference plate (Master plane)		7099041
4	Torque gauge		7099039
5	Torque gauge adaptor		7099035
6	Dummy reel		7099043
7	Reel disk height jig		7099001
8	1.5 mm hexagonal wrench		——
9	Fan type tension gauge		——

3. NAMES AND LOCATIONS OF MAIN CHASSIS PARTS

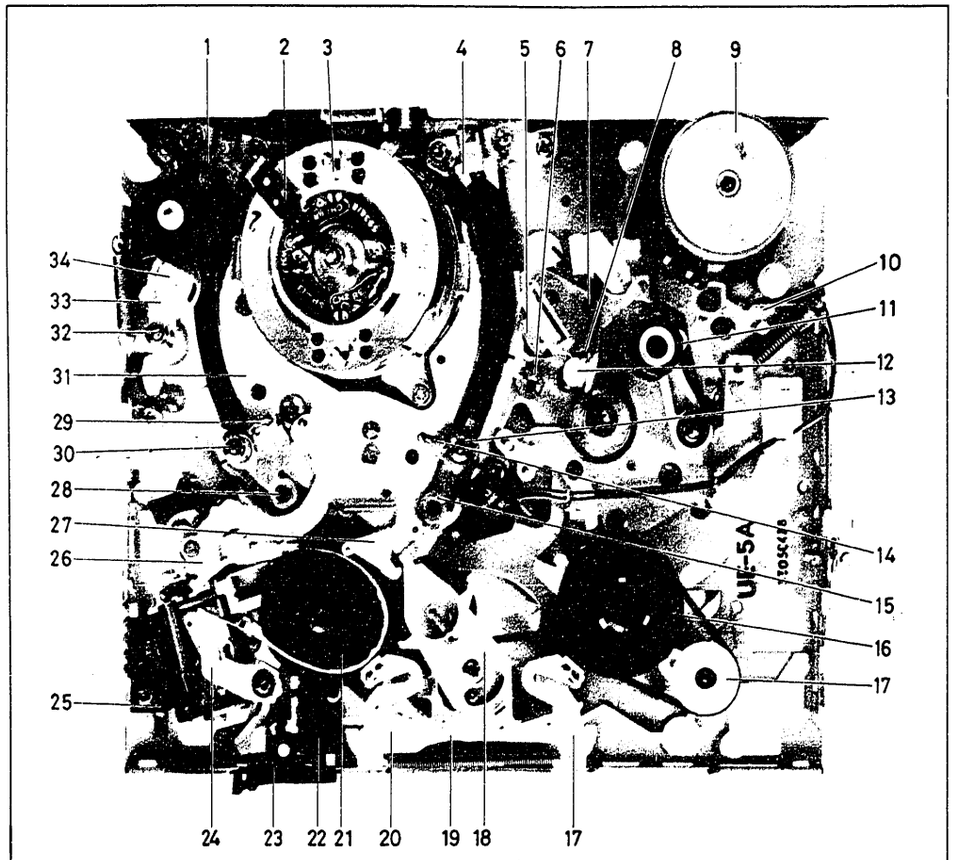


Fig. 10 (Top)

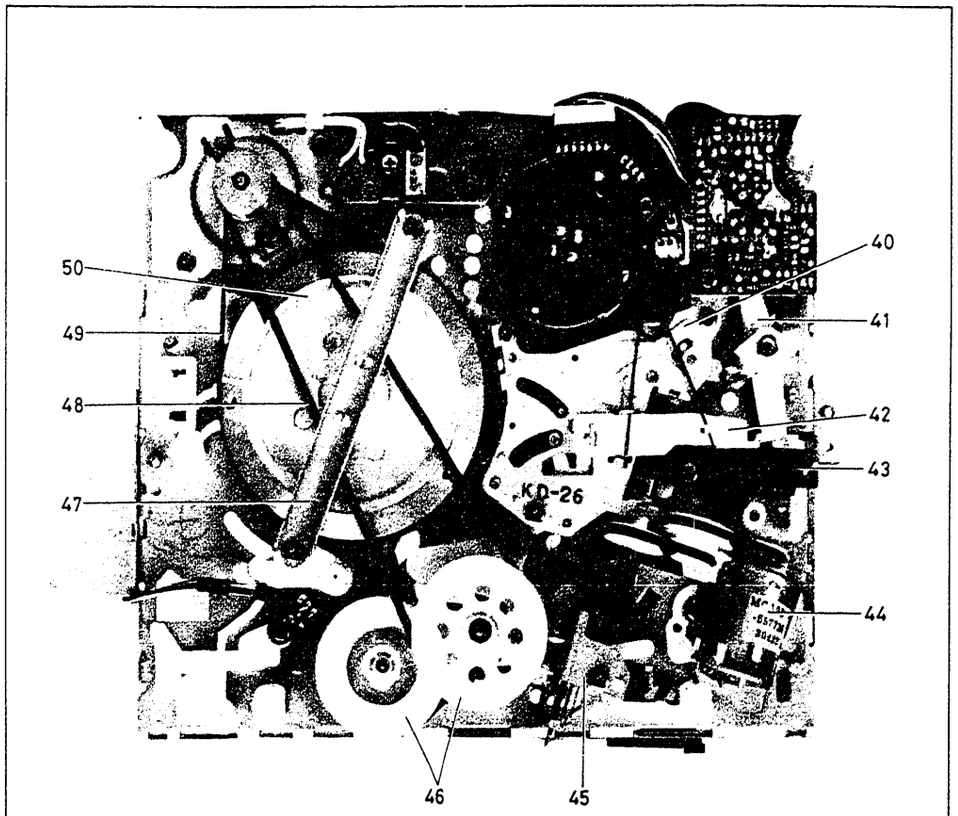


Fig. 11 (Bottom)

1. Catcher (Supply)
2. Cylinder motor brush
3. Video head (Upper cylinder)
4. Catcher (Take-up)
5. AC head (Audio control head)
6. X value adjusting screw
7. Tilt adjusting screw
8. Azimuth adjusting screw
9. Capstan motor ass'y
10. Arm bracket ass'y
11. Pressure roller ass'y
12. Guide pole (Tape guide)
13. Guide roller (Take-up)
14. Inclined guide (Take-up)
15. Guide roller base (Take-up)
16. Take-up reel disk
17. Main brake (Take-up)
18. FF/REW idler arm ass'y
19. Brake conversion arm
20. Main brake (Supply)
21. Supply reel disk
22. Safety tab switch
23. Record prevention arm
24. Tension band ass'y (Tension band, tension bracket)
25. Spring holder (Spring hanger)
26. Tension arm
27. Sub-brake
28. Guide roller base (Supply)
29. Inclined guide (Supply)
30. Guide roller (Supply side)
31. Guide base clamp plate
32. Guide pole (Supply side)
33. Impedance roller arm ass'y
34. FE head (Full erase head)
35. FF/REW pulley

40. Loading gear ass'y
41. Tension release arm 2
42. Mode slider
43. Mechanism state switch
44. Loading motor ass'y
45. Brake slider ass'y
46. Clutch plate ass'y
47. Flywheel support plate
48. Reel belt
49. Flywheel belt
50. Flywheel ass'y

4. BEFORE DISASSEMBLING PARTS

The parts shown below are fixed in the factory using precision jigs so be sure not to loosen their screws or remove them.

1) Take-up/supply catchers and fixing screws.
2) Inclined guide.
3) Supply guide pole height adjusting nuts.
4) Take-up/supply guide roller height adjusting screws.
5) AC head X value adjusting screw.
6) AC head tilt adjusting screw.
7) AC head azimuth adjusting screw.
8) AC head height adjusting nut.
9) Back tension adjusting spring holder fixing screw.
10) Tension band fixing screw.

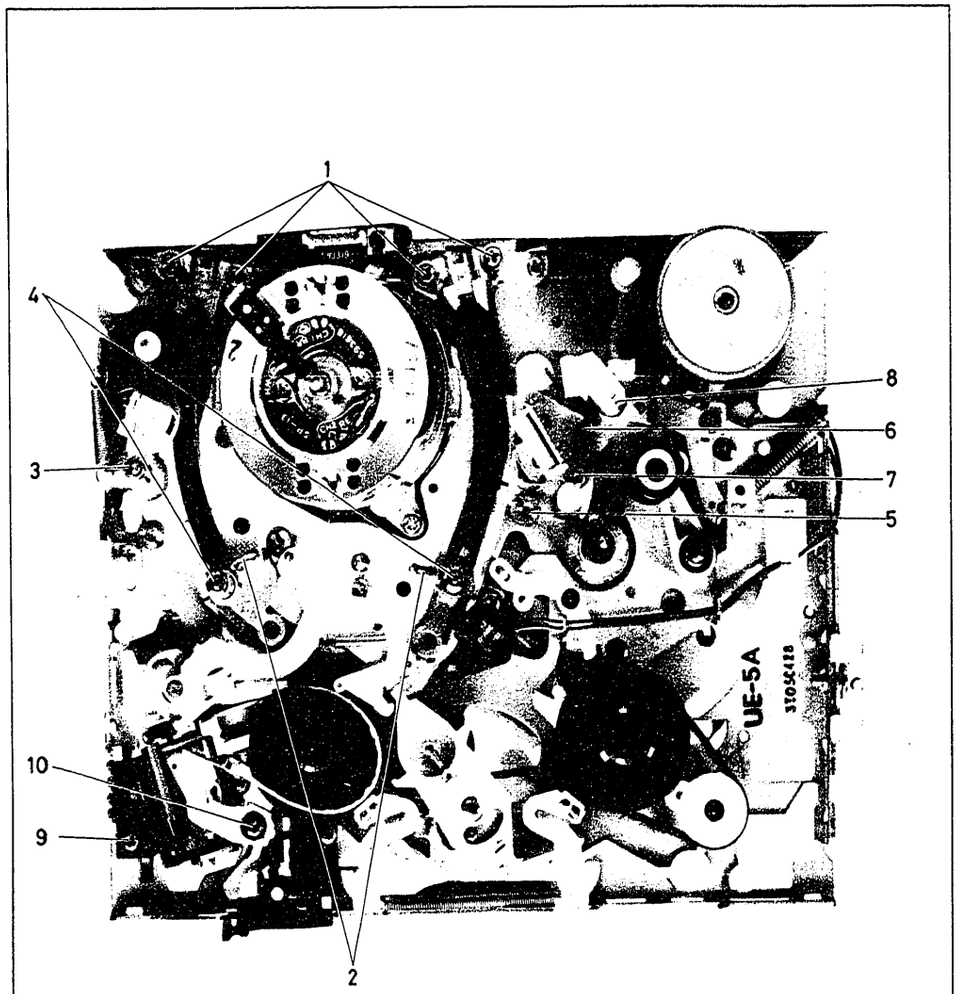


Fig. 12

5. REMOVING CHASSIS PC BOARDS

5-1. End sensor (Supply/Take-up) PC Board (Fig. 13-1, 13-2)

1) Remove the cassette loading mechanism (Item 6-1).
2) Release 2 stoppers (1 each).

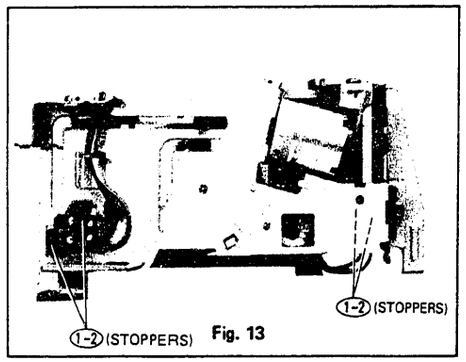


Fig. 13

5-2. Cassette loading motor PC Board (Fig. 14)

1) Remove the cassette loading mechanism (Item 6-1).
2) Remove the motor block ass'y from the chassis (Item 6-1).
3) Remove 2 screws and take out the cassette loading PC Board together with the cassette loading motor.

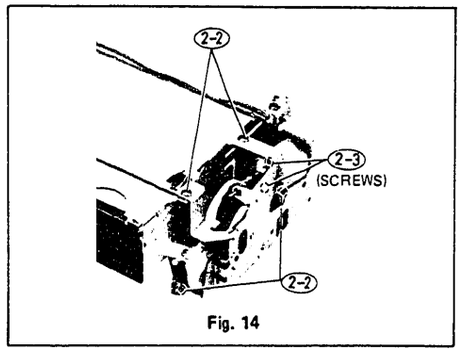


Fig. 14

5-3. Safety tab switch PC Board (Fig. 15)

1) Remove the cassette loading mechanism (Item 6-1).
2) Remove screw.
3) Disconnect connector.

5-4. End lamp PC Board (Fig. 15)

1) Remove the cassette loading mechanism (Item 6-1).
2) Remove screw.

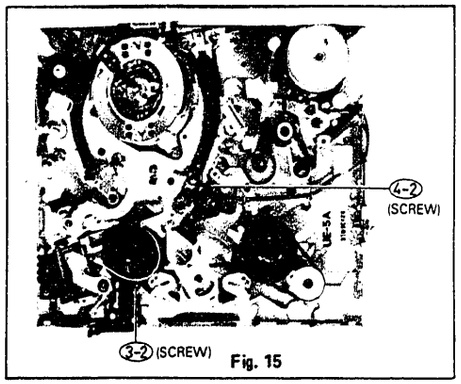


Fig. 15

5-5. Take-up reel sensor PC Board (Fig. 16)

1) Remove screw.

5-6. Mechanism state switch (Fig. 16)

1) Remove screw.
* Adjust the mechanism state switch installation position (Item 8-1) after installing it.

5-7. Capstan motor PC Board (Fig. 16)

1) Remove screw.

5-8. Cylinder motor PC Board (Fig. 16)

1) Remove 2 screws.

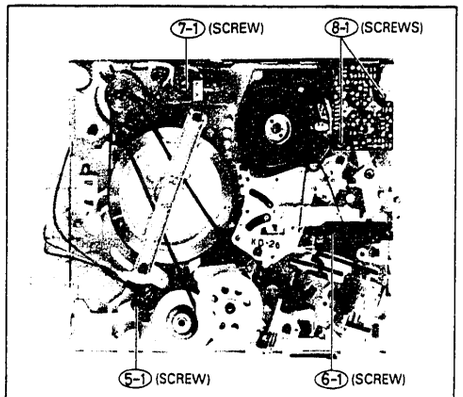


Fig. 16

6. REMOVING MAIN CHASSIS PARTS

6-1. Cassette loading mechanism (Fig. 17)

1) Remove the top cover. (Item 1-2)
2) Remove the front panel. (Item 1-4)
3) Release 2 stoppers to take out the shield cover.
4) Remove the reinforcement plate and disconnect the connector.
5) Remove 2 screws and lift the cassette loading mechanism assembly by moving it in the direction of the arrow.

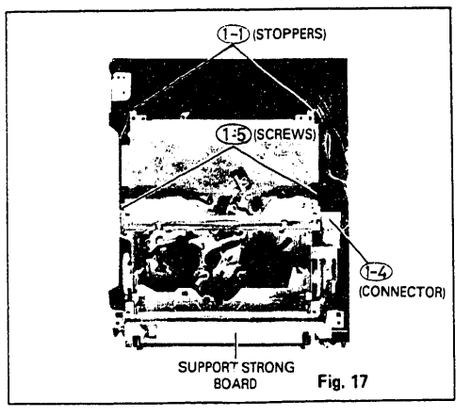


Fig. 17

1. Motor block assembly (Figs. 18-1, 18-2, 18-3, 18-4)

1) Remove the cassette loading mechanism. (Item 6-1)
2) Remove 2 screws to remove the reinforcement plate.
3) Remove 3 screws to remove the motor block ass'y.

Note: Check the following when installing the motor block ass'y.

(1) Confirm that the markings on the pinion gear and drive gear match.
(2) Confirm that the markings on the motor block chassis and clutch gear match.
(3) Confirm that 2 pins of the switch lever are inserted into the grove outside the drive gear.
(4) Confirm that markings (1) and (2) are aligned in a horizontal line after installing the motor block ass'y.

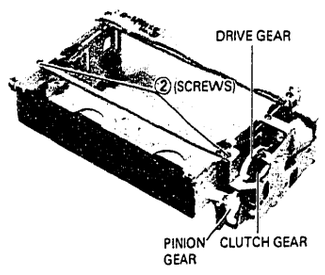


Fig. 18-1

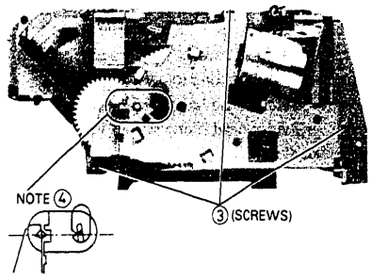


Fig. 18-2

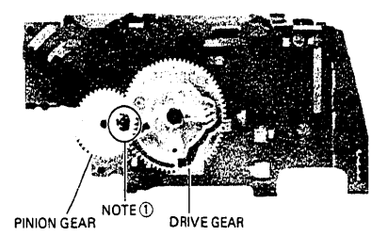


Fig. 18-3

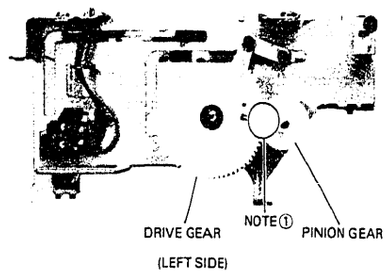


Fig. 18-4

6-2. Cylinder motor (Fig. 19-1, 19-2, 19-3)

The service parts of the cylinder motor are as follows.

1. Video head (Upper cylinder)
2. Fixed (lower) cylinder ass'y
3. Transformer terminals
4. Stator circuit board ass'y
5. Rotor magnet ass'y
6. FG circuit ass'y

The replacement procedure for each part is described in the following.

1. Video head (Upper cylinder) (Fig. 19-1, Fig. 19-2)

1) Remove the main PC Board.
2) Remove 2 chassis cover fixing screws.
3) Remove the shield cover.
4) Remove the brush fixing screw (4).
5) Remove 4 video head leads (5-1) shown in Fig. 24-2.
6) Remove 2 video head fixing screws (6) to pull out the video head.

* Assemble the video head in the reverse procedure to disassembly. Check the following after assembly.

① Tighten 2 video head fixing screws (6) shown in Fig. 19-1 alternately. Be careful not to touch the video head tip with a finger or tool.
② Check that the leads of the rotary transformer shown in Fig. 19-2 and the lead colors marked on the relay PC Board match when soldering the leads after replacing the video head.
③ Clean the tape touching section of the cylinder using alcohol, etc. after installing the video head.
④ Check the output of the FM signal. (Refer to the item "Transport system adjustment" in "Mechanism adjustment").
⑤ Check the record level of the Y/chroma signals. (Refer to the item "Record current adjustment" in "Circuit adjustment").
⑥ Check the switching point of the video head. (Refer to the item "Switching point (CH1, CH2 PHASE) adjustment" in "Circuit adjustment").
⑦ Check that the FM signal is max. with the tracking VR set to the center (click) position. (Refer to the item "Tracking preset adjustment" in "Circuit adjustment").

2. Fixed cylinder (lower cylinder) (Fig. 19-1)

1) Remove the cylinder motor circuit board (Refer to Item 5-8).
2) Disconnect 3 connectors (7).
3) Disconnect 1 connectors (8).
4) Remove 3 lower cylinder fixing screws (9), and then remove the fixed cylinder (lower cylinder) from the top of the chassis.
5) Remove the video head (upper cylinder).

* Install the fixed cylinder (lower cylinder) by the procedure reverse to disassembly. When the video head (upper cylinder) is removed, electrically check and adjust it according to the procedure described previously in the item "Video head installation method".

3. Transformer terminals (Fig. 19-1, Fig. 19-2)

Transformer terminals play the role of the guides which lead the leads of the rotary transformer to the video head (upper cylinder). When the leads are cut and shortened and soldering them to the relay circuit board is not possible, replace the transformer terminals.

1) Remove the video head. (Refer to item (1)).
2) Unsolder the leads (5-2) soldered to the relay circuit board for the fixed head.
3) Pull out the transformer terminals.

* Install the transformer terminals by the procedure reverse to disassembly. Check that the lead colors and color names stamped on the relay circuit board on the rotary transformer match at that time (Refer to Fig. 19-2).

4. Rotary magnet ass'y (Fig. 19-3)

Do not allow the rotary magnet to be attracted by other magnetic or iron materials because it is magnetized with high precision to maintain the precise rotation of the motor. When it is attracted by mistake, there is danger that its magnetization may be changed. Pay special attention in handling the FG signal generating magnet installed to the back of the rotary magnet because the number of poles is 60 and magnetizing force is weak.

1) Remove stator circuit board fixing screw (10).
2) Turn the stator circuit board clockwise to remove the stator ass'y.
3) Remove motor case fixing screw (11).
4) Turn the motor case clockwise to remove it.
5) Remove 2 rotor magnet fixing screws (12) shown in Fig. 19-3.
6) Remove the rotor magnet. Be careful not to apply unreasonable force to the cylinder shaft at that time.

* Install the rotor magnet by the procedure reverse to disassembly. Check items shown below at that time.

① The installation position regulating convex section is provided near the hole in the rotor magnet into which the shaft is inserted, to adjust the installation position. Install the rotor magnet so that this convex section enters the concave section provided in the shaft.
② Check the switching point of the video head after installing the rotor magnet. (Refer to the item "CH1/CH2 phase adjustment" in "Circuit adjustment").

5. FG PC Board ass'y (Fig. 19-1)

1) Remove the stator PC Board.
2) Remove the rotor magnet (Item 4).
3) Remove motor case fixing screw (11).
4) Turn the motor case clockwise to remove it.
5) Remove 3 FG PC Board fixing screws (13).

* Install the FG PC Board ass'y by the procedure reverse to disassembly. Refer to the item "Rotor Magnet" also for the installation procedure of the FG PC Board and electrical adjustment and checking after installation.

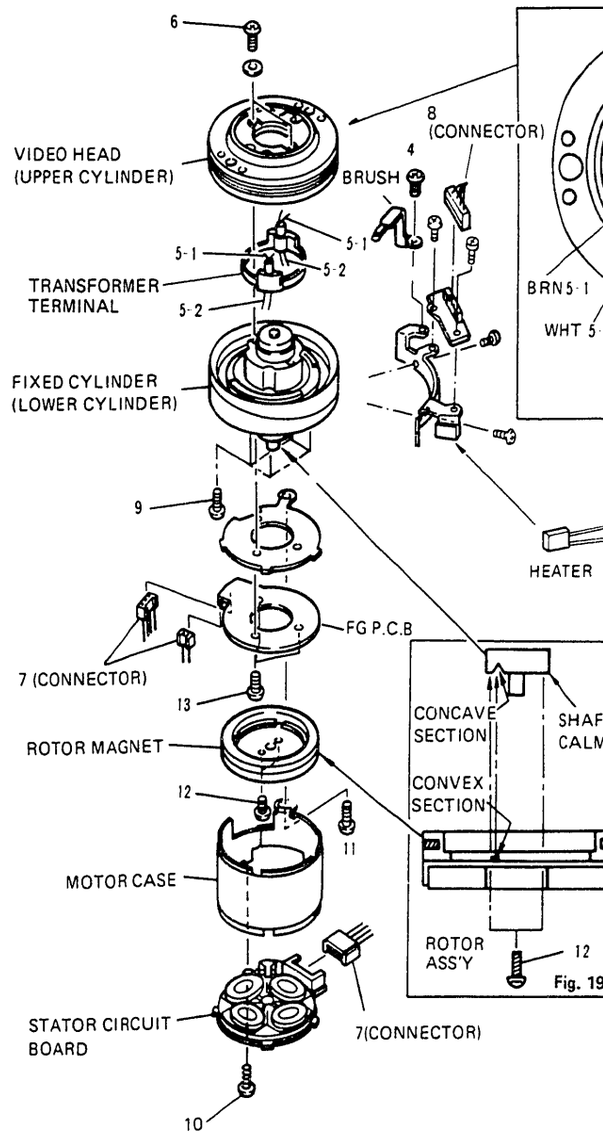


Fig. 19-3

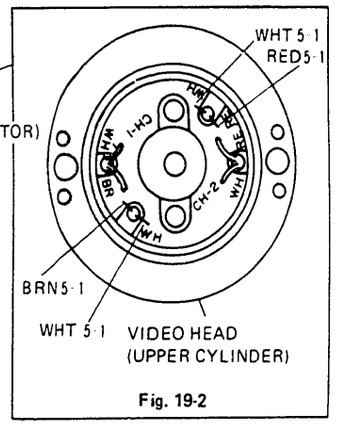


Fig. 19-2

Fig. 19-1

6-3. Loading motor ass'y (Fig. 20)

1) Remove the loading belt.
2) Disconnect connector (14).
3) Remove bracket fixing screw (15) and remove the loading motor.

* Install the loading motor by the procedure reverse to disassembly.

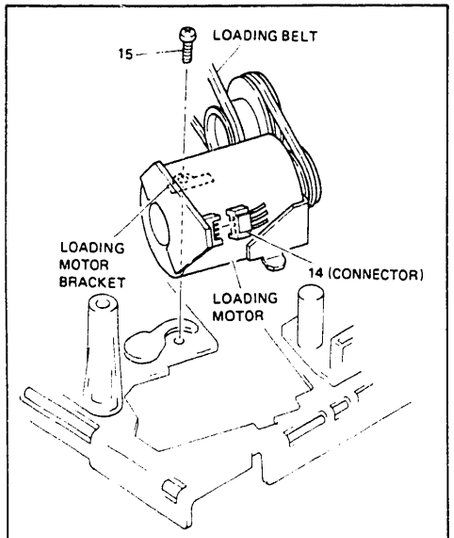


Fig. 20

6-4. Capstan motor (Fig. 21)

1) Remove the reel belt.
2) Remove the flywheel belt.
3) Remove 2 capstan motor holder fixing screws (16).
4) Lift the capstan motor ass'y (motor, holder, circuit board) in the direction of the arrow.

* Install the capstan motor by the procedure reverse to disassembly. Check twisting, etc. after installing the reel belt.

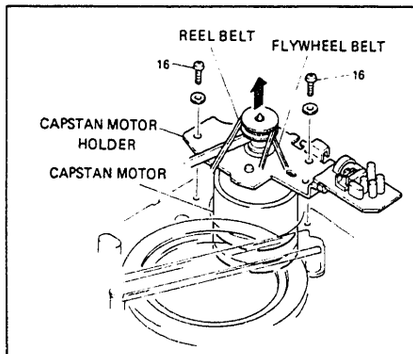


Fig. 21

6-5. Flywheel (Fig. 22)

1) Remove 2 flywheel support plate fixing screws (17) to remove it.
2) Pull out the flywheel in the direction of the arrow.

* Install the flywheel by the procedure reverse to disassembly.
Insert washer (18) into the capstan shaft from the top of chassis.

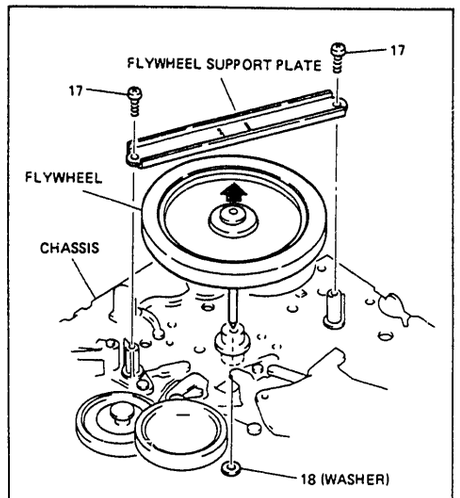


Fig. 22

6-6. FF/REW idler arm ass'y (Fig. 23)

1) Move spring holder (19) in the direction of arrow A to remove it.
2) Pull out the FF/REW idler ass'y in the direction of arrow ②.

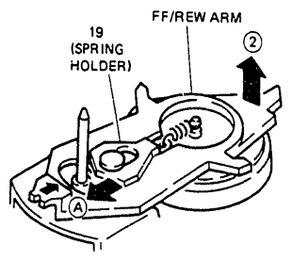


Fig. 23

6-7. Clutch plate ass'y (Fig. 24)

1) Remove the FF/REW idler arm ass'y. (Refer to Item 6-6)
2) Remove 2 clutch plate fixing screws (20).
3) Press the main brake arms (supply side and take-up side) and the brake conversion arm in the direction of arrow Ⓐ to release their engagement and lift the clutch plate ass'y in the direction of arrow Ⓑ to remove it.

* Install the clutch plate ass'y by the procedure reverse to disassembly.

6-8. Brake slider ass'y (Fig. 24)

1) Remove the FF/REW idler arm ass'y. (Refer to Item 6-6)
2) Remove the clutch plate ass'y. (Refer to Item 6-7)
3) Remove brake slider ass'y fixing screw (21) to remove the brake slider ass'y.

* Install the brake slider ass'y by the procedure reverse to disassembly.

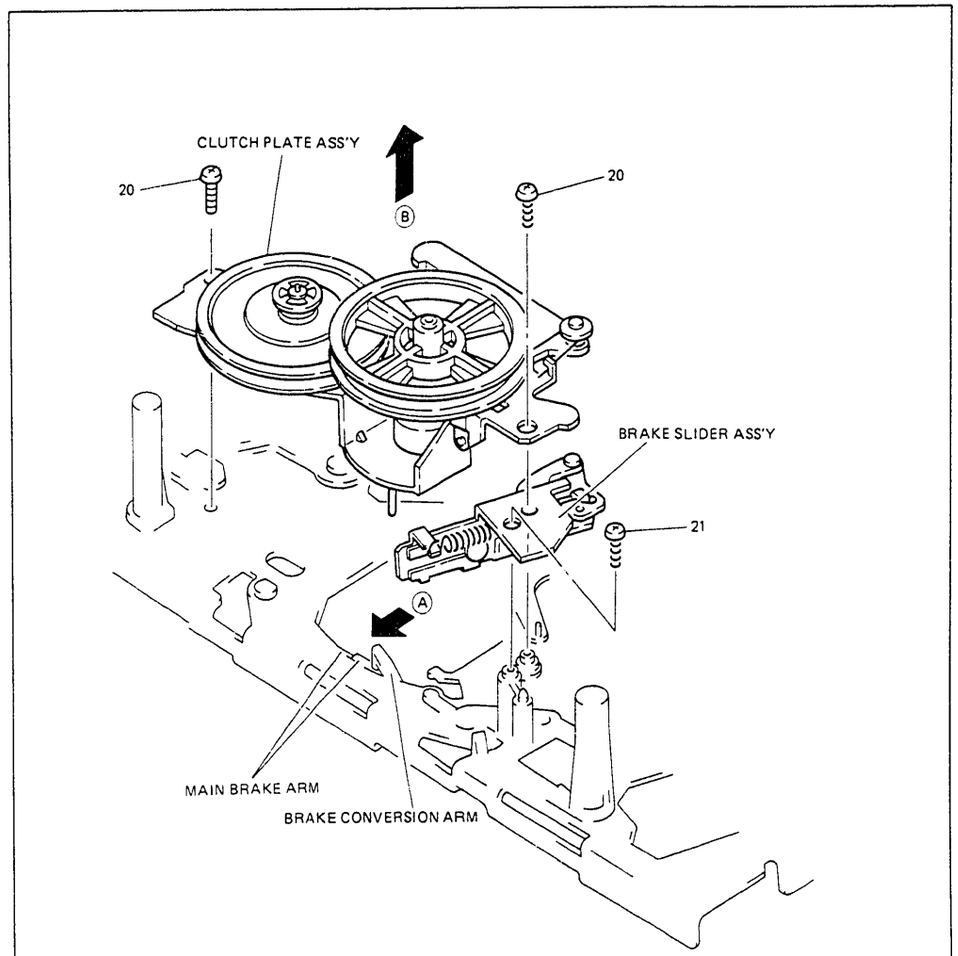


Fig. 24

6-9. Loading gear ass'y (Fig. 25, Fig. 26)

1) Turn the loading pulley (shown in Fig. 31) fully in the direction of unloading (direction of arrow Ⓐ) by band to set the chassis to the unloading mode.
2) Remove the mechanism state switch. (Refer to Item 5-6)
3) Remove the clutch plate ass'y. (Refer to Item 6-7)
4) Remove the brake slider ass'y. (Refer to Item 6-8)
5) Remove 3 loading gear ass'y fixing screws (22) shown in Fig. 26.
6) Remove 2 guide base clamp plate fixing screws (23) shown in Fig. 25.
7) Remove the T release arm while pressing the stopper shown in Fig. 26 in the direction of arrow Ⓑ .
8) Remove the loading gear ass'y.

* Install the loading gear ass'y by the procedure reverse to disassembly. Install it while paying attention to the items shown below and the linked sections shown in Fig. 26.

1 The loading gear shaft should be inserted into the hole in the loading link.
2 The operation arm shaft should be inserted into the hole in the T brake operation arm.
3 The shaft of the T release arm 1 should be inserted into the hole in the T release arm 2.
4 The shaft of drive arm should be inserted into the hole in the coupling piece.

Check and adjust the installation position of the mechanism state switch after installing it. (Refer to Item 8-1).

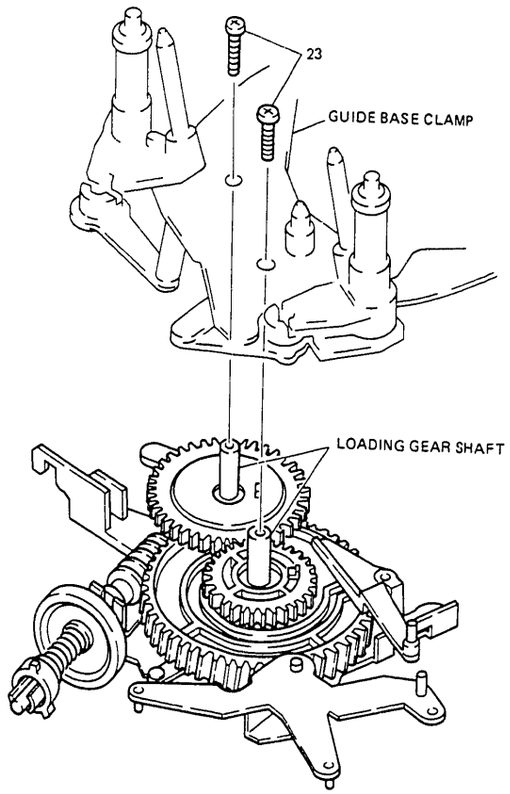


Fig. 25

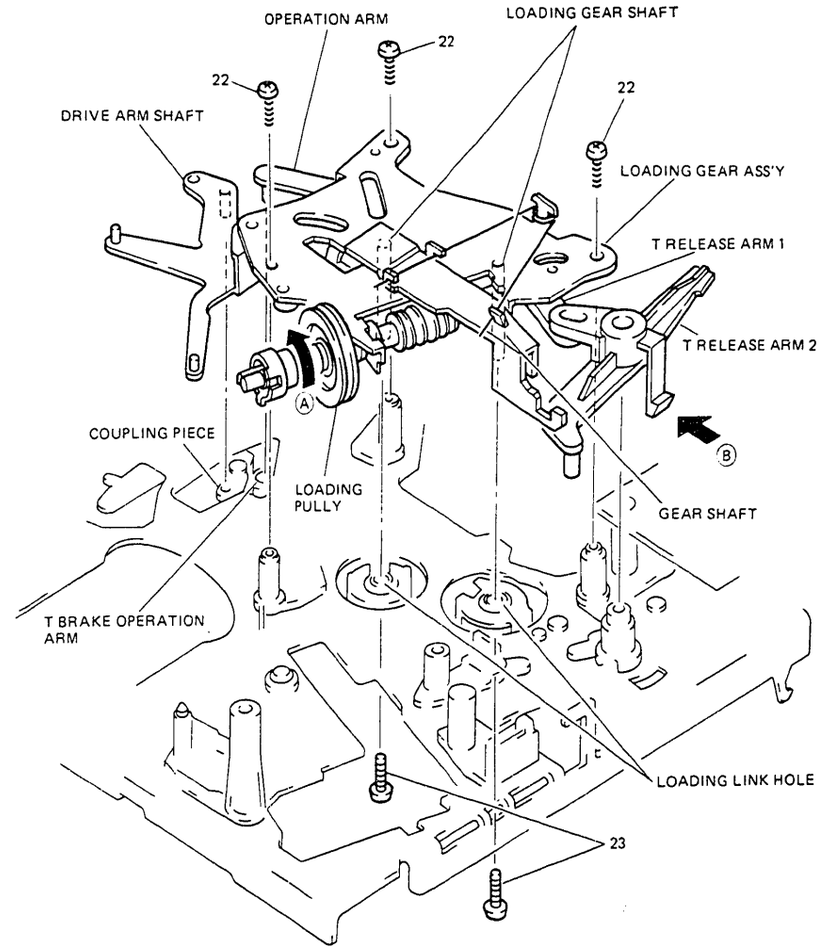


Fig. 26

6-10. Tension band/tension arm ass'y (Fig. 27)

Tension band

1) Remove the cassette loading mechanism (Refer to Item 6-1).
2) Remove tension band fixing screw (24).
3) Press stopper Ⓐ of the tension band felt to release engagement between the tension band and tension felt, and then remove the tension band.

Tension arm

1) Remove the tension band.
2) Remove spring (25).
3) Pull out the tension arm upward while pressing stopper Ⓑ.

* Install the tension band/tension arm ass'y by the procedure reverse to disassembly. Adjust the position of the tension pole and tension after installation is completed.

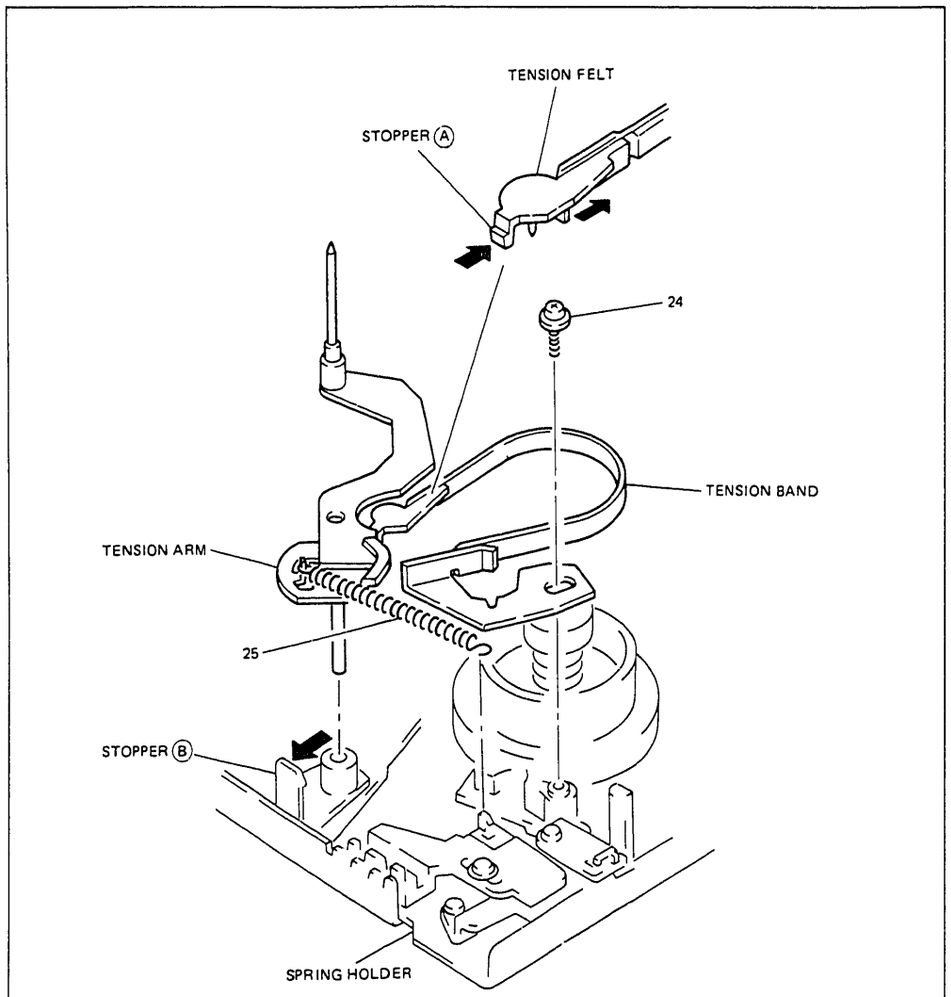


Fig. 27

6-11. Take-up reel disk/supply reel disk (Fig. 28)

1) Remove the cassette loading mechanism (Refer to Item 6-1).
2) Remove washer (26) shown in Fig. 28.

6-12. Pressure roller arm bracket ass'y (Fig. 28)

Pressure roller

1) Remove pressure roller fixing screw (27).

Pressure roller arm

2) Remove pressure roller arm fixing washer (28).

Arm bracket ass'y

1) Remove the cassette loading mechanism (Refer to Item 6-1).
2) Remove the take-up reel disk. (Refer to Item 6-11)
3) Remove the pressure roller arm.
4) Remove 2 arm bracket fixing screws (29).

* Install the pressure roller ass'y by the procedure reverse to disassembly, taking care of connections below.

① The operation arm shaft should be inserted into the hole in the T brake operation arm shown in Fig. 26.
② The drive arm shaft should be inserted into the hole in the coupling piece shown in Fig. 26.

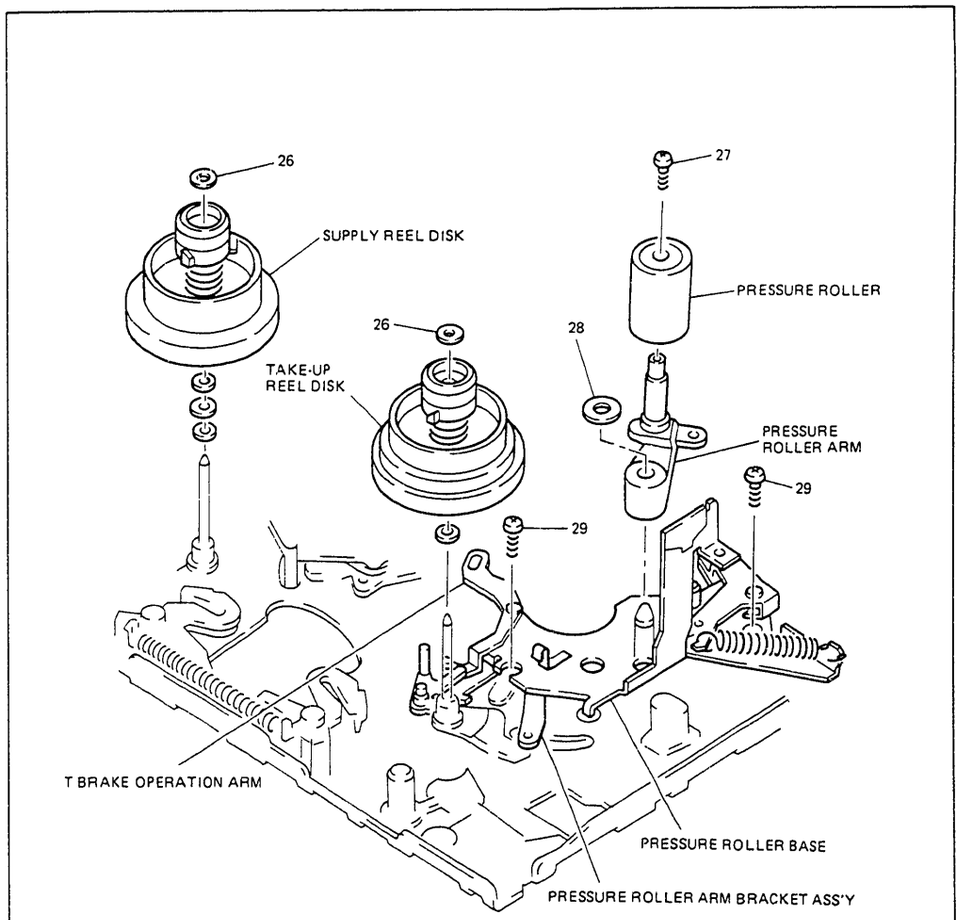


Fig. 28

6-13. Guide pole (Fig. 29)

1) Remove nut (30).
2) Remove the guide pole.

* Adjust the height of the guide pole after installing the guide pole. (Refer to the item 8-2)

6-14. FE head (full erase head) (Fig. 29)

1) Remove the guide pole. (Refer to Item 6-13)
2) Remove spring (31).
3) Remove spring (32) from the impedance roller.
4) Pull out the impedance roller ass'y in the direction of the arrow.
5) Remove FE head fixing screw (33) shown in Fig. 29.

* Install the impedance roller arm ass'y/FE head by the procedure reverse to disassembly, and adjust the height of the tape guide after installation is completed. (Refer to the item 8-2)

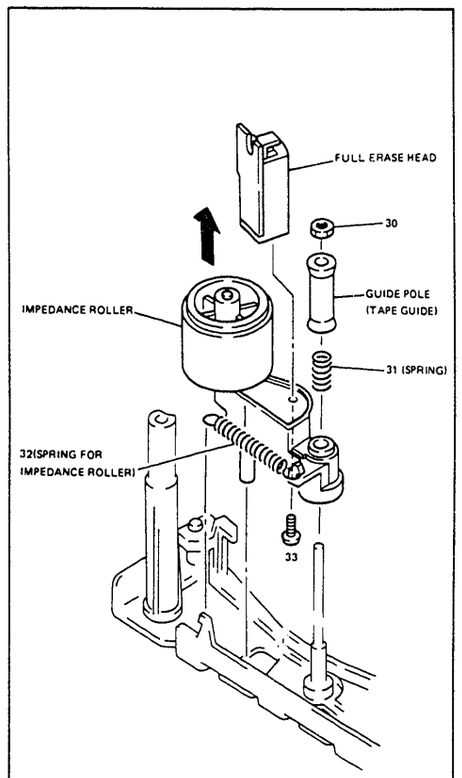


Fig. 29

6-15. AC (Audio/control) head (Fig. 30-1, Fig. 30-2)

1) Remove the wiring guide.
2) Remove head base fixing nut (34) and washer to take out the AC head ass'y.
3) Tighten head fixing screw (35) to the extent that it comes out approx. 1 mm above the top of the AC head base, after replacing the AC head.
4) Tighten head fixing screws (36, 37) until the head base and the AC head base are set parallel based on the height of the convex section of the head base.
5) Insert spring (38) between the AC head ass'y and the chassis, to install the AC head to the chassis.
6) Perform the "AC head adjustment" described in the Transport system adjustment. After the adjustment is completed, perform the electric adjustment (playback level and bias level).

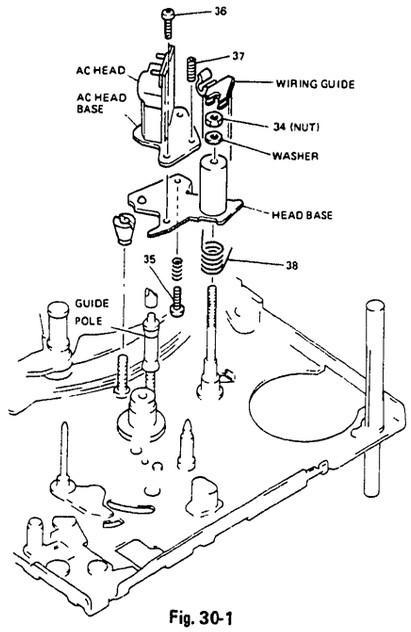


Fig. 30-1

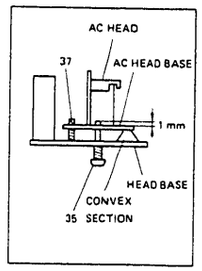


Fig. 30-2

ADJUSTMENT

7. ELECTRIC CIRCUIT ADJUSTMENT

Test equipment, jigs and tapes required for overall circuit adjustment

1) Color TV set
2) Oscilloscope
3) VTVM
4) Color bar signal generator
5) Frequency counter
6) DC voltmeter
7) Alignment tape
8) Blank tape

Order of adjustment
Perform adjustment in the order shown below.

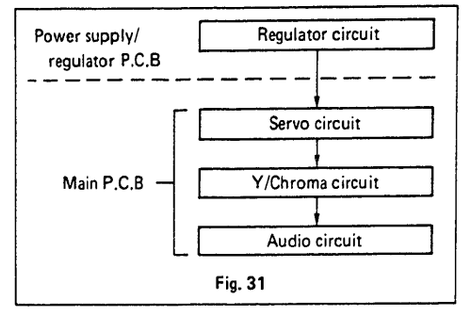
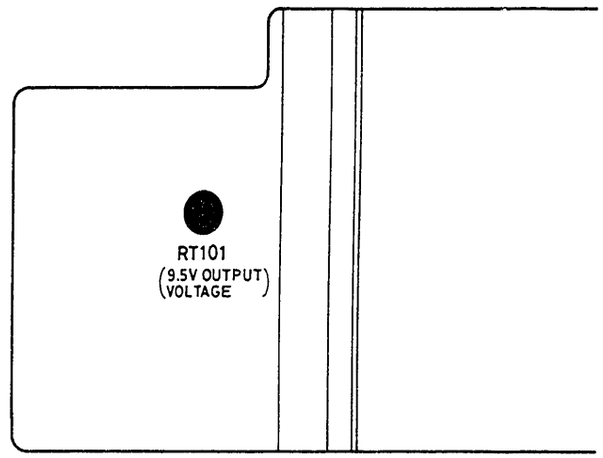


Fig. 31

7-1. POWER SUPPLY/REGULATOR CIRCUIT

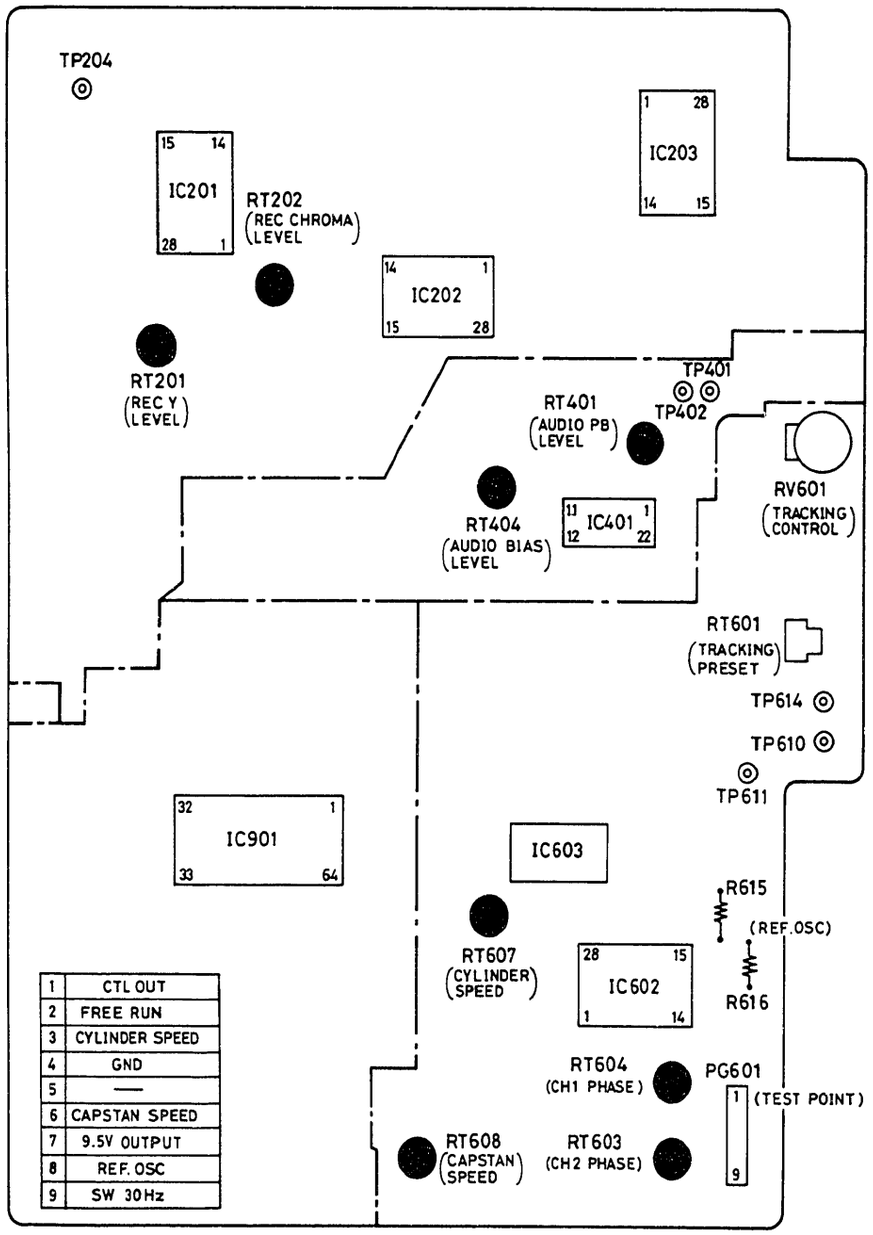
Remove the top cover, set the VTR horizontal and follow the adjustment procedure shown below.



Power supply/Regulator PC Board (Parts side)

1. 9.5V OUTPUT VOLTAGE ADJUSTMENT

Connection
Connect a DC voltmeter to the test point terminal PG601-⑦.
Mode
EE mode
Adjustment point
RT101
Adjustment
Adjust RT101 so that the DC voltmeter indicates 9.5V ±0.1V.



Main P.C. Board (Parts side)

7-2. SERVO CIRCUIT

1. CYLINDER SPEED ADJUSTMENT

This adjustment is to set the cylinder speed to a constant 1800 rpm.

Connection

1) Connect the color bar signal generator to the video input jack on the front panel or receive a TV program.
2) Connect the oscilloscope between the test point terminals PG601-③ and PG601-④ (GND).

Mode

Set the recording speed select switch to "SP" and place the VTR in the record mode.

Adjustment point

RT607

Adjustment

1) Short-circuit test point terminals PG601-② and PG601-⑦. Adjust RT607 so that the sampling pulse superimposed on the cylinder tach pulse shown in Fig. 32 stands still.

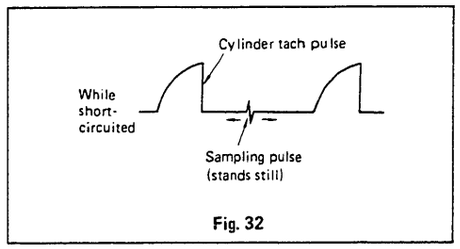


Fig. 32

2) Disconnect the short-circuit between PG601-② and PG601-⑦ (done in item 1). Check that the sampling pulse stands still at the trailing edge of the cylinder tach pulse shown in Fig. 33.

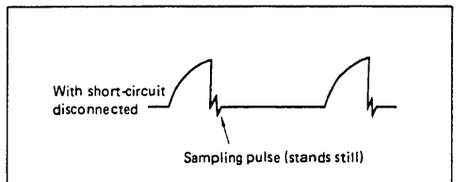


Fig. 33

2. CAPSTAN SPEED ADJUSTMENT

This adjustment is to set the tape speed to a constant 33.35 mm/sec in SP, 22.24 mm/sec in LP and 11.12 mm/sec in EP.

Connection

1) Connect the color bar signal generator to the video input jack on the front panel or receive a TV program.
2) Connect the oscilloscope between the test point terminals PG601-⑥ and PG601-④ (GND).

Mode

Set the tracking VR to the "click" point and the recording speed select switch to "EP", and place the unit in the record mode.

Adjustment point

RT608

Adjustment

1) Short-circuit test point terminals PG601-② and PG601-⑦. Adjust RT608 so that the sampling pulse superimposed on the tracking MM charge curve stands still.

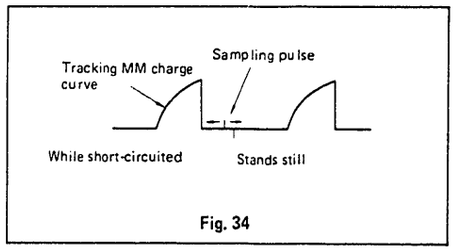


Fig. 34

2) Disconnect the short-circuit between PG601-② and PG601-⑦ (done in item 1). Check that the tracking pulse stands still around the leading edge of the tracking MM charge curve shown in Fig. 35.

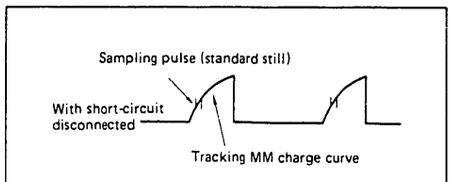


Fig. 35

Reference

The tape speed in the "SP" and "LP" mode is not required to adjust. When confirming the speed, set the recording speed select switch to "SP" or "LP" and short-circuit between test point terminals PG601-② and PG601-⑦ while recording. Confirm that the sampling pulse shown in Fig. 35 stands still at that time.

3. REFERENCE OSCILLATION FREQUENCY ADJUSTMENT

Connection

Connect the frequency counter to the audio output jack on the rear panel.

Mode

Short-circuit test point terminals PG601-⑧ and PG601-⑦ and set only the servo phase control system (IC602) to the record mode. Then, play back the audio track 3 kHz section of the alignment tape.

Adjustment point

R615, R616

Adjustment

Confirm that the reading of the frequency counter is 3000 Hz ± 15 Hz. Omit R616 when the reading is 3015 Hz or more. On the contrary, omit R615 when it is 2985 Hz or less.

4. CH1/CH2 PHASE ADJUSTMENT

Connection

1) Connect the "EXT TRIG" of the oscilloscope to the test point terminal PG601-⑨ (SW30 signal output) and PG601-④ (GND), and the "INPUT" of the oscilloscope to the video output jack on the rear of the VTR.
2) Connect the monitor TV to the VHF output jack on the rear of the VTR.

Mode

Play back the alignment tape.

Adjustment point

RT604 (CH1), RT603 (CH2)

Adjustment

Set the sync slope select switch of the oscilloscope to "−" when adjusting the phase of CH1, and set to "+" when adjusting the phase of CH2. Then adjust RT604 and RT603 so that the switching points of respective channels are 6.5H ± 0.5H before the vertical sync signal in the video signal.

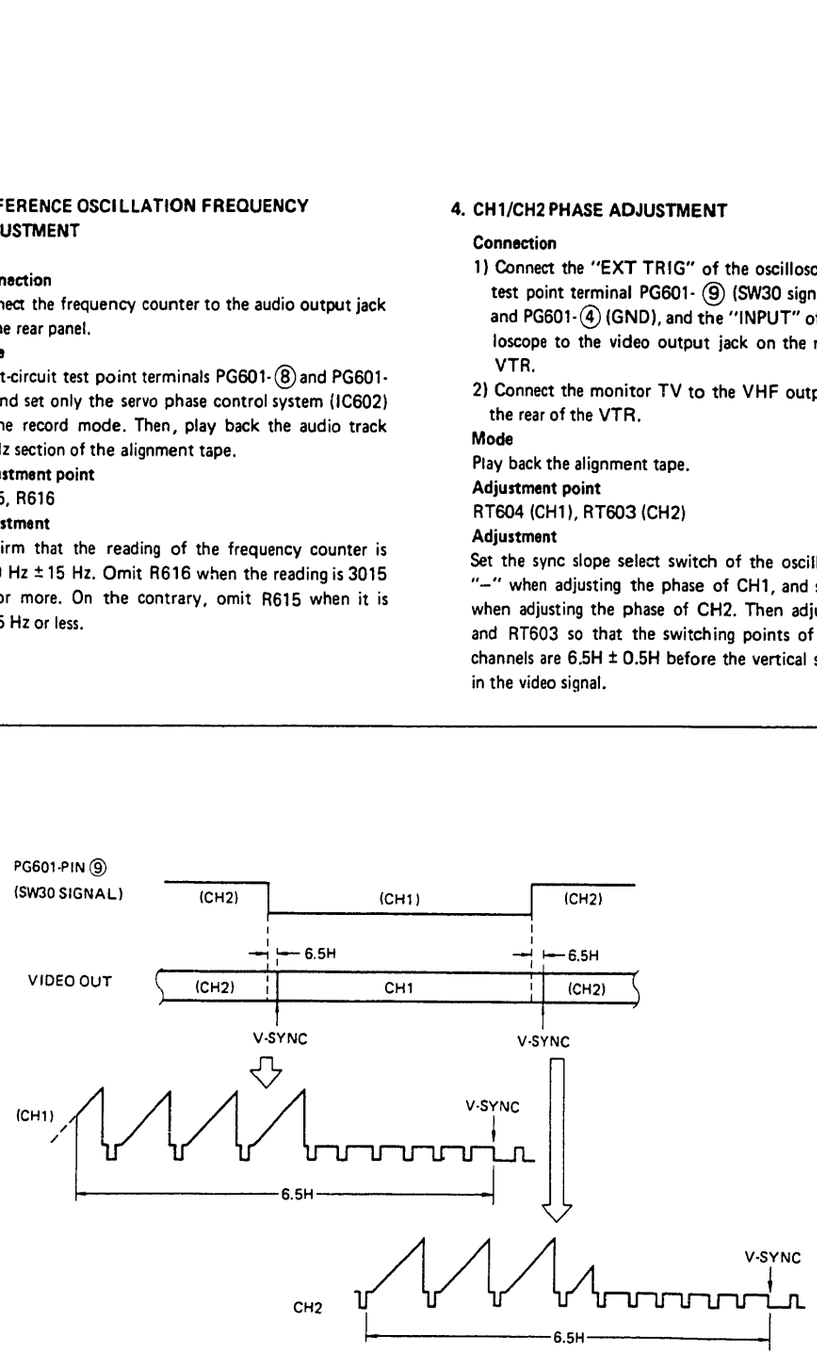


Fig. 36

5. TRACKING PRESET ADJUSTMENT

Connection

1) Connect the color bar signal generator to the video input jack on the front panel or receive a TV program.
2) Connect the CH-1 terminal of the oscilloscope to the video output jack on the rear panel and the CH-2 terminal to TP614.

Mode

Set the tracking VR to the click point and the recording speed select switch to "SP", and perform recording for several minutes. Then play back this section for adjustment.

Adjustment point

RT601

Adjustment

1) Set the sync slope select switch to the (+) position and then apply the trigger pulse to the CH2 terminal of the oscilloscope.
2) Adjust RT601 so that the vertical sync signal in the video signal and the positive half peak of the control pulse match (Fig. 37).
3) Observe the monitor picture, set the tracking control to the left and right centering on the click position and confirm that the best S/N ratio is obtained at the click position.

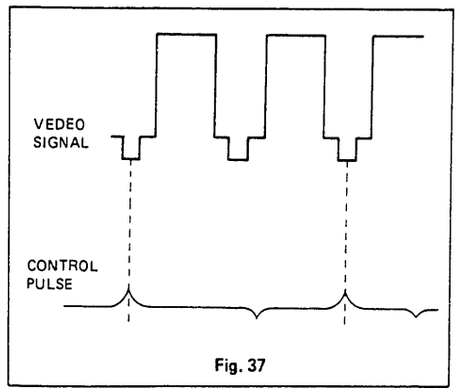


Fig. 37

7-3. Y/CHROMA CIRCUIT

1. RECORD Y/CHROMA LEVEL ADJUSTMENT

The record Y/chroma level is set to the adjusted value shown in Table 1 according to the numerals marked on the upper cylinder shown in Fig. 38. When the cylinder or parts in the Y/chroma circuit are replaced, check the cylinder mark before adjustment.

Record Y level

Level
150 mVp-p

Record chroma level

Cylinder mark	Level
No mark	35mVp-p
1	40mVp-p
2	40mVp-p
3	40mVp-p
4	45mVp-p

Table 1

Connection

1) Receive a TV programme or connect the color bar signal generator to the video input jack on the front panel.
2) Connect the oscilloscope to the test point terminal TP204.

Mode

Set the recording speed select switch to "EP" and place the VTR in the record mode.

Adjustment point

RT201 (Record Y level)
RT202 (Record chroma level)

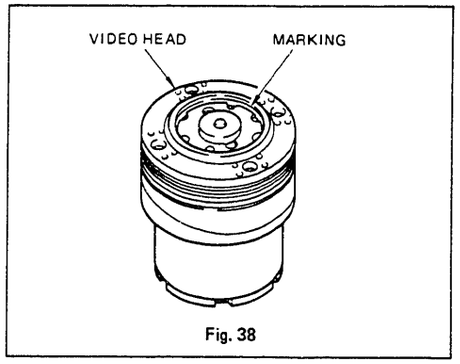


Fig. 38

Adjustment

Turn RT201 fully counterclockwise, and then adjust RT202 so that the reading of the oscilloscope corresponds to the marked value. Next, adjust RT201 so that the reading of the oscilloscope is 150mVp-p.
Fig. 39. Refer to Table 1.

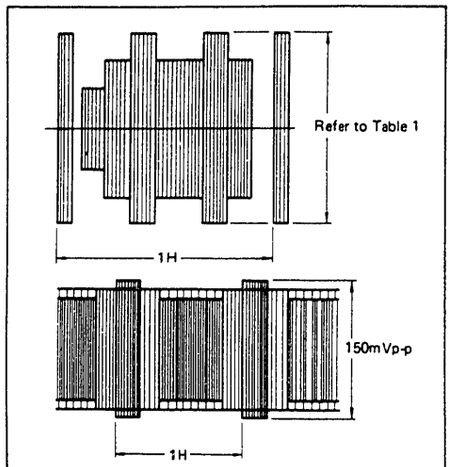


Fig. 39

7-4. AUDIO CIRCUIT

1. AUDIO PLAYBACK LEVEL ADJUSTMENT

Connection

Connect a VTVM to the audio output jack on the rear panel.

Mode

Play back the audio track 1 kHz section of the alignment tape.

Adjustment point

RT401

Adjustment

Adjust RT401 so that the reading of the VTVM is −8 dBm.

2. AUDIO RECORD BIAS LEVEL ADJUSTMENT

Connection

Connect the VTVM to the test point terminal TP401.

Mode

Set the recording speed select switch to "SP" and set the VTR to the record mode with the no signal input.

Adjustment point

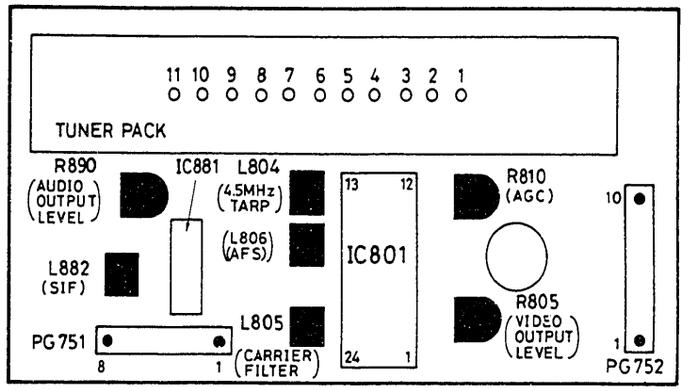
RT404

Adjustment

Adjust RT404 so that the reading of the VTVM is 2.2 mV ± 0.1 mV.

7-5. TUNER/IF CIRCUIT

Note: In the unit, the tuner pack and IF is a single unit. It has been adjusted carefully, but if it gets out of adjustment, adjust it by the following procedure.
When it is desired to adjust the tuner pack and IF remove this block from the unit.



Tuner/IF Circuit Board (Parts side)

1. CARRIER FILTER ADJUSTMENT

Connection

1) Connect the sweep marker generator (Output: −30 ±10 dBm, marker frequency: 45.75 MHz) to IC801 pin 6 of the TUNER/IF pack via the coupling circuit shown in Fig. 40.
2) Supply +8.5V DC to IC801 pin 12.
3) Connect the oscilloscope to IC801-pin 6 and observe the IF signal waveform.

Mode

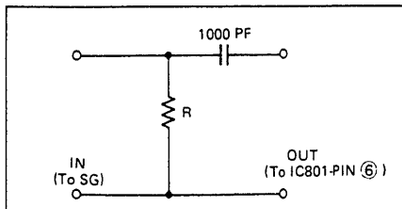
STOP mode (EE mode).

Adjustment Point

L805

Adjustment

Adjust the core of L805 so that the 45.75 MHz 50 kHz component of the waveform of video output is maximum. (Fig. 41)



R: SELECT A VALUE TO MATCH OUTPUT IMPEDANCE OF SIGNAL GENERATOR

Fig. 40 Coupling Circuit

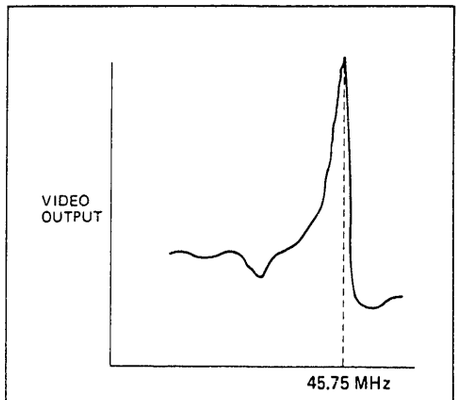


Fig. 41 Carrier Filter

2. 4.5 MHz TRAP ADJUSTMENT

Connection

1) Connect the sweep marker generator to IC801 pin 6 of the TUNER/IF pack via the coupling circuit shown in Fig. 40.
   (−20 ± 10 dBm, marker frequency: 41.25 MHz, 47.25 MHz)
2) Connect the oscilloscope to PG751-pin 2.
3) Supply +8.5V DC to IC801 pin 12.

Mode

STOP mode (EE mode)

Adjustment Point

L804

Adjustment

Adjust the core of L804 so that the level of audio trap frequency (41.25 MHz) is minimum. (Fig. 42)

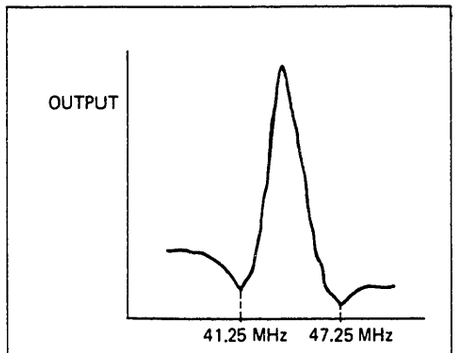


Fig. 42 4.5 MHz Trap

3. AFS ADJUSTMENT

Connection

1) Connect the sweep marker generator (Output: −4 ±5 dBm, marker frequency: 45.75 MHz) to tuner pack-pin 9 via the coupling circuit shown in Fig. 74.
2) Supply +8.5V DC to IC801 pin 12.
3) Connect the oscilloscope to PG752-pin 1 via the coupling circuit shown in Fig. 43.

Mode

STOP mode (E-E mode)

Adjustment Point

L806

Adjustment

Adjust L806 so that the output voltage at 45.75 MHz is 6.5V± 1.0V. (Fig. 44)

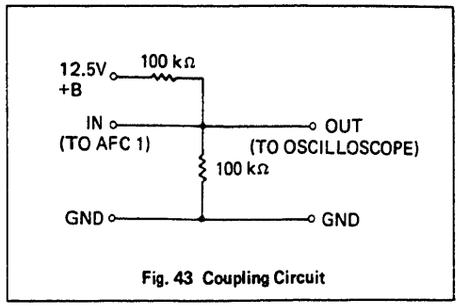


Fig. 43 Coupling Circuit

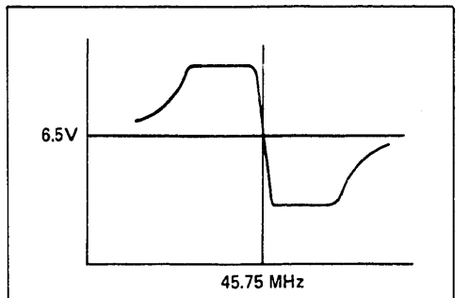


Fig. 44 AFS

4. SIF ADJUSTMENT

Connection

1) Connect the AM signal generator (41.25 MHz±5 kHz, −60 ± 5 dBm, Audio signal (400 Hz): AM 30% modulation) to IC801 pin 2 of IF pack via the coupling circuit shown in Fig. 40.
2) Connect the oscilloscope to PG751-pin 4 and observe the audio IF signal waveform.
3) Supply +8.5V DC to IC801 pin 12.

Mode

STOP mode (E-E mode)

Adjustment Point

L882

Adjustment

Adjust L882 so that the output is minimum.

5. VIDEO OUTPUT LEVEL ADJUSTMENT

Connection

Connect the color bar RF generator to the ANTENNA INPUT terminal of VTR.
(VHF input: channel 13, −41 ± 10 dBm, modulation degree 87.5%).

Mode

STOP mode (E-E mode)

Adjustment Point

R805

Adjustment

1) Press the channel selector switch 13 and tune the VTR for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Connect the oscilloscope to PG751-pin 2 and adjust R805 so that the output level is 1 Vp-p. (Fig. 45)

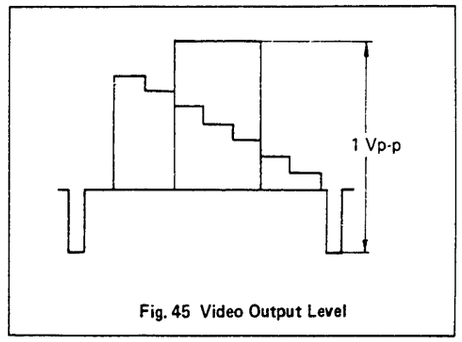


Fig. 45 Video Output Level

6. AUDIO OUTPUT LEVEL ADJUSTMENT

Connection

Connect the TV signal generator to the ANTENNA INPUT terminal of VTR.
(VHF input: channel 13, −41 ± 10 dBm, 30% modulation with sinewave audio signal at 400 Hz).

Mode

1) STOP mode (E-E mode)
2) AFS switch ON

Ajustment Point

L890

Adjustment

1) Press the channel selector switch 13 and tune the VTR for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Connect the oscilloscope to PG751-pin 4.
4) Adjust R890 so that the output level is equal −15 ± 1.5 dBm.

7. RF AGC ADJUSTMENT

Connection

Connect the color bar RF-generator to the ANTENNA INPUT terminal of VTR.
(VHF input: −44 dBm, modulation degree 87.5%).

Mode

Turn power ON.

Adjustment Point

R810

Adjustment

1) Press the channel selector switch to channel 13, and tune the VTR for best reception by observing the picture on the screen.
2) Close the channel preset cover. (AFS switch: ON)
3) Measure the voltage at the AGC terminal of tuner pack-pin 4 and adjust R810 so that the voltage is 9.2V± 0.1V.

8. MECHANISM ADJUSTMENT

8-1. ADJUSTING MECHANISM STATE SWITCH INSTALLATION POSITION

The mechanism state switch is installed at the position near the supply reel at the bottom of the chassis. Adjust the installation position of the mechanism state switch according to the procedure shown below when the mechanism state switch is replaced.

1) Turn the pulley installed to the shaft of the worm gear in the loading mechanism shown in Fig. 46-1 by hand in the unloding direction (counterclockwise Ⓐ) until it stops.
2) Loosen the mechanism state switch fixing screw Ⓑ and match the top of the triangular hole in the knob of the mechanism state switch shown in Fig. 46-2 with the top of the triangle of the "STOP" position engraved on the body of the mechanism state switch.
3) Tighten the mechanism state switch fixing screw Ⓑ and then load a blank tape and set the Stop ⟷ F. FWD/Rewind ⟷ REC/PLAY ⟷ REC-PAUSE ⟷ PLAY ⟷ Reverse visual search modes, to check that the mechanism operates normally. When the operation in any mode is faulty, readjust the mechanism state switch installation position.

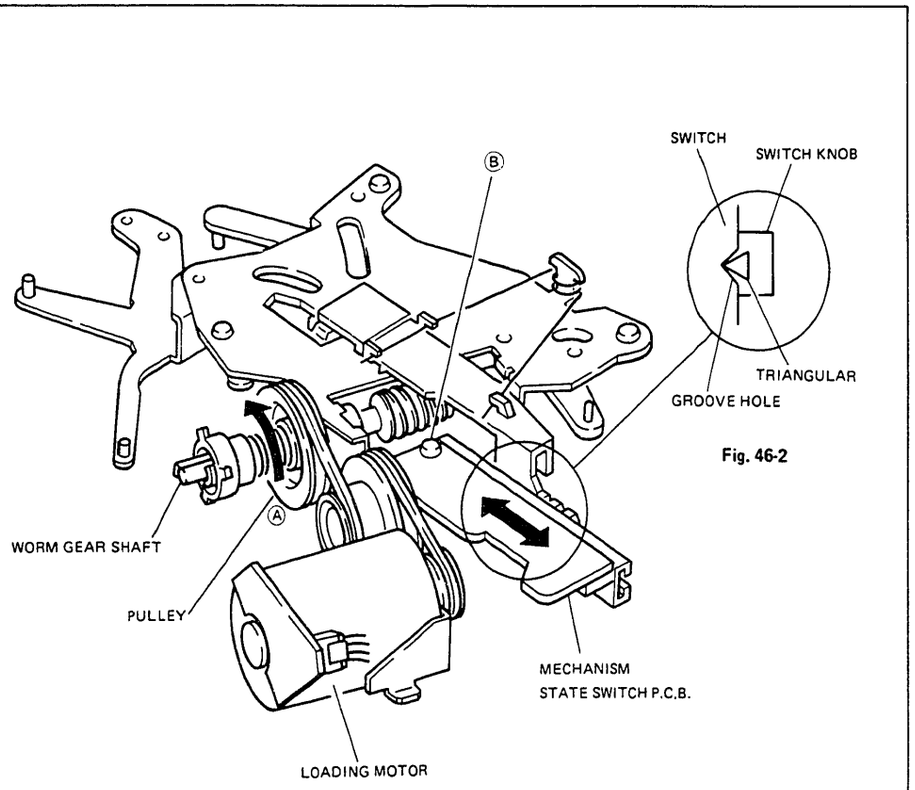


Fig. 46-1

Fig. 46-2

8-2. TRANSPORT SYSTEM ADJUSTMENT

The adjustment items shown below are related to the tape transport system.

(1) Reel disk height adjustment
(2) Tension pole adjustment
(3) Guide pole height adjustment
(4) AC head height/azimuth/tilt adjustment
(5) Guide roller height adjustment

With the tape transport system, it is basically most important that the route from the supply reel disk to the take-up reel disk shown in Fig. 47 is clean without creases and is stable. The tape transport system is adjusted precisely in the factory while paying utmost attention. When parts related to the tape transport system are replaced, the tape transport should be kept stable by adjusting only the replaced parts. When the adjustment of the parts is not done or parts other than those replaced are moved, the adjustment of the parts concerning the tape transport system may get out of order and result in unsatisfactory operation.

Do not loosen the fixing screws for the parts shown below. When parts are to be replaced due to breakage, etc., be sure to install the new parts to the same positions where the replaced parts were installed before, and then perform the precise adjustment described in the item "Guide roller height adjustment".

(1) Catcher on the supply or take-up side.
(2) Inclined guide on the supply or take-up side.

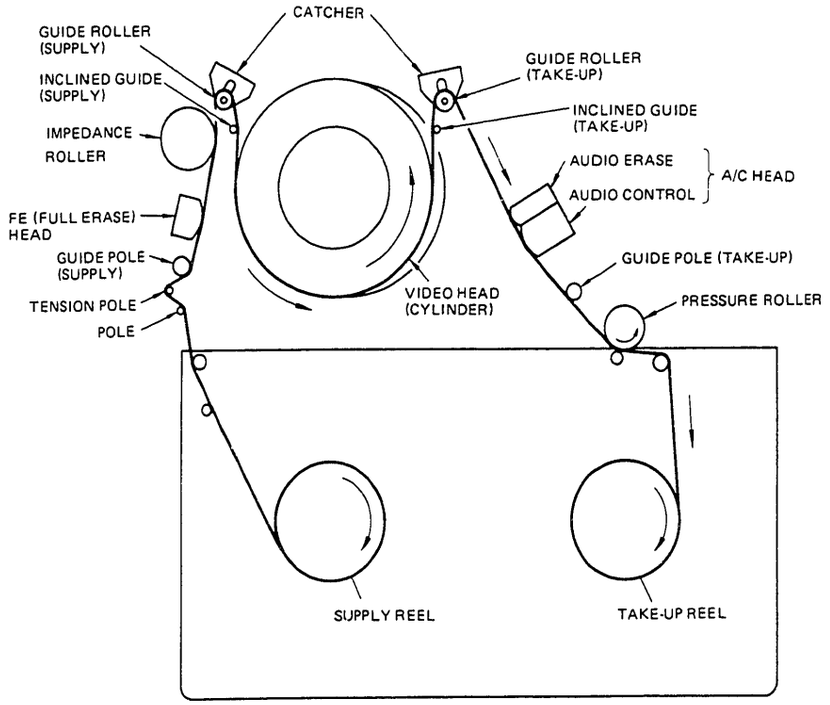


Fig. 47

(1) REEL DISK HEIGHT ADJUSTMENT

Jigs required for adjustment
Master plane, reel height adjusting jig
Adjustment procedure
1) Remove the top panel and cassette holder.
2) Mount the master plane, place the reel height adjusting jig on the master plane as shown in Fig. 48, and check whether or not the reel disk enters between side A and side B of the reel height adjusting jig. When the reel disk does not enter between side A and side B, adjust the quantity of spacers (2 types; 0.25 mm and 0.5 mm) inserted between the reel disk and the base of the reel disk.

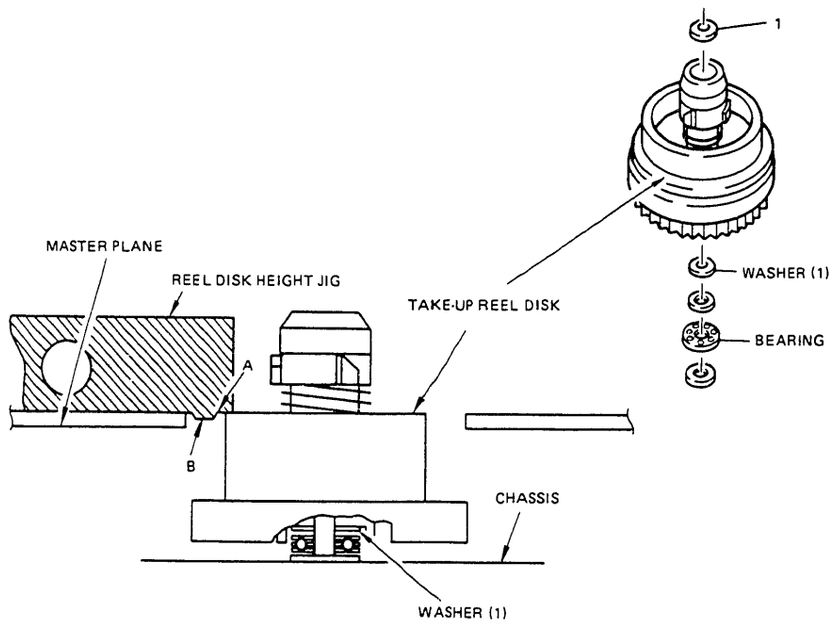


Fig. 48

(2) TENSION POLE ADJUSTMENT

Jigs required for adjustment
Back tension meter
Adjustment procedure
Perform this adjustment after removing the cassette panel to set the VTR horizontal.
1) Remove the cassette panel.
   Note: Remove the top panel, cassette holder and tension band when replacing the tension arm.
2) Shut off the supply end sensor (no light can be received), and set the VTR to the play mode without loading a tape. Check that the gap between the tension pole and chassis shown in Fig. 49-2 is 1.5 mm ± 0.5 mm at that time. When it is not, loosen the tension band fixing screw, insert the tip of a (–) screwdriver into the groove in the loading motor holder and the groove in the tension band bracket shown in Fig. 49-3 to move the tension band bracket by turning the screwdriver. Tighten the tension band fixing screw and apply locking point after adjustment is completed.
3) Mount the back tension meter and set the VTR to the play mode. Check that the reading of the back tension meter is 35 ± 8 g.cm at that time. If not, loosen the spring hanger fixing screw shown in Fig. 49-1, insert the tip of the (–) screwdriver into the groove in the chassis and the groove in the spring hanger, and move the tension hanger installation position while turning the screwdriver to adjust that the back tension is 35 ±2g.cm. Tighten the tension hanger fixing screw and apply locking paint after adjustment is completed.
   Note: The back tension values are different between during confirmation and adjustment.

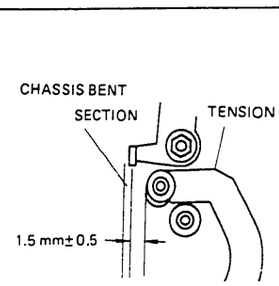


Fig. 49-2

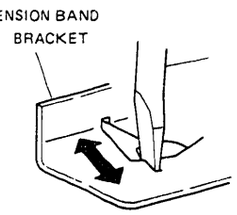


Fig. 49-3

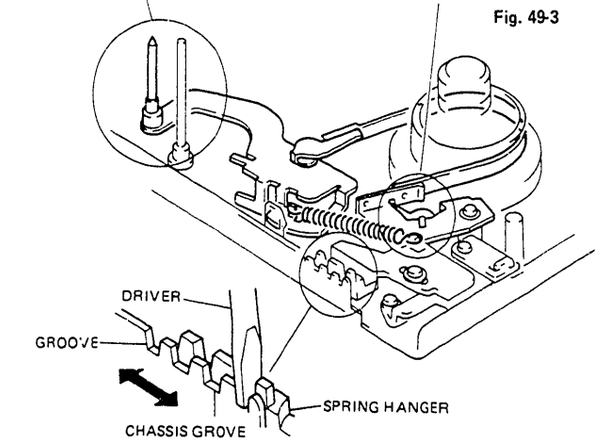


Fig. 49-1

(3) GUIDE POLE HEIGHT ADJUSTMENT

Jigs required for adjustment

Master plane, reel height adjusting jig, blank tape

Adjustment procedure

Guide pole height adjustment: Perform rough adjustment using the master plane and reel height adjusting jig first, and then run a blank tape to adjust the height precisely.

1) Remove the top panel and cassette holder.
2) Mount the master plane and place the reel height adjusting jig on the master plane shown in Fig. 50.
   Then, roughly adjust the guide pole height adjusting nut so that the gap between the flange of the guide pole and the reel height adjusting jig is within 0 - 0.2 mm when side C of the jig is applied to the guide pole.
3) Install the cassette holder, load a blank tape and play it back. Check that the tape does not ride over the flange of the guide pole and runs stably at that time. When the tape rides over the flange of the guide pole, fine-adjust the guide pole height.
4) Tighten the adjusting nut and apply locking paint after adjustment is completed.

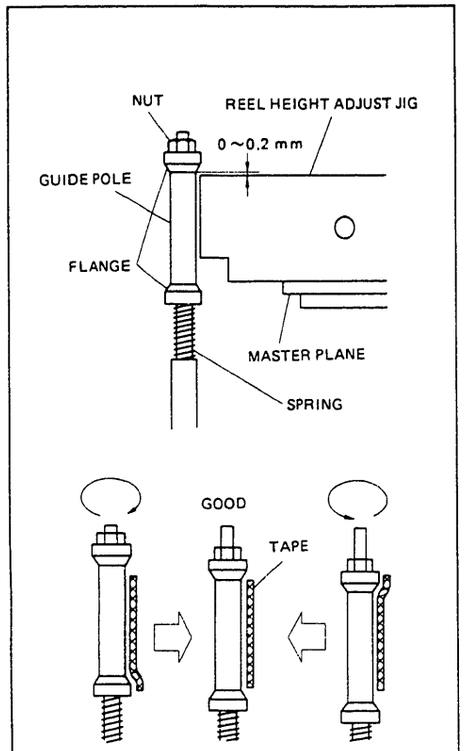


Fig. 50

(4) AC HEAD ADJUSTMENT

The AC head adjustment consists of the audio play output/recording bias level adjustment described in the "Circuit adjustment" as well as the height/azimuth/tilt adjustment described in the following. Perform all these adjustments when the AC head is replaced. The adjustment details below show the adjustment procedure when the AC head is replaced; be sure to perform precise adjustment after rough adjustment.

AC HEAD ROUGH ADJUSTMENT

Jigs required for adjustment

Master plane, reel height adjusting jig, blank tape

Adjustment procedure

1) Tighten screw (35) shown in Fig. 51-2 through the bottom of the head base (2) via the spring so that it projects approx. 1 mm above the top of the AC head base (1).
2) Roughly adjust tilt adjusting screw (37) shown in Fig. 51-2 and azimuth adjusting screw (36) so that the gap between the AC head base (1) and head base (2) is approx. 2.3 mm, and the AC head base (1) and head base (2) are parallel.
3) Remove the cassette holder and mount the master plane.
4) Place the reel height adjusting jig on the master plane as shown in Fig. 52. Then roughly adjust the AC head height adjusting nut so that the gap between the reel height adjusting jig and the shield case of the AC head is approx. 0.5 mm when the side C of jig is applied to the AC head.
5) Install the cassette holder, load a blank tape and set the VTR to the play mode. Check that there is no conspicuous curling or protruding around the AC head at that time. The ideal AC head height is with the bottom of the tape approx. shown Fig. 53, 0.3 mm from the bottom of the core of the CTL head. Roughly adjust the tilt adjusting screw, azimuth adjusting screw and AC head height adjusting nut when conspicuous curling or protruding occurs.
6) Perform precise adjustment
7) Perform the guide roller height adjustment.

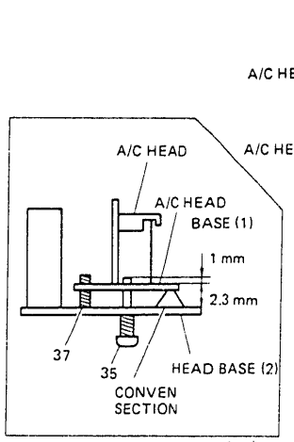


Fig. 51-2

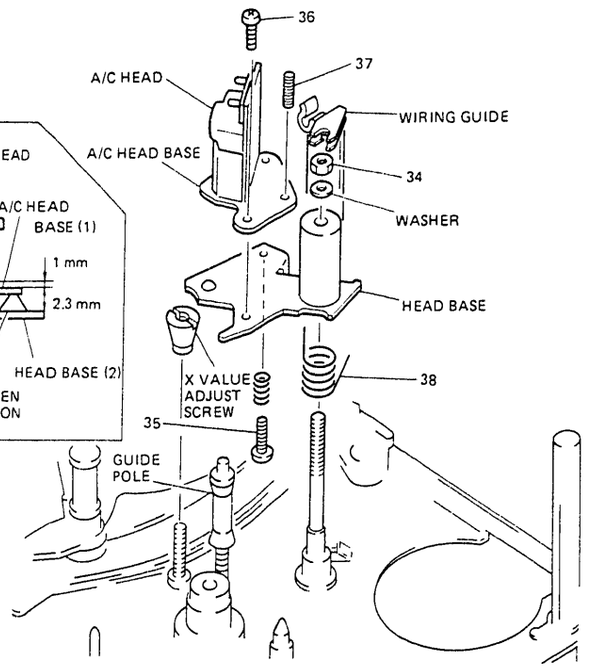


Fig. 51-1

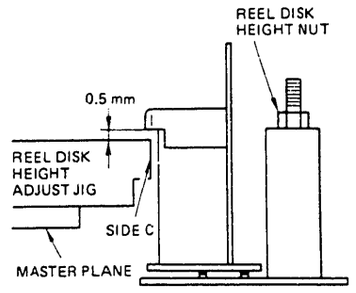


Fig. 52

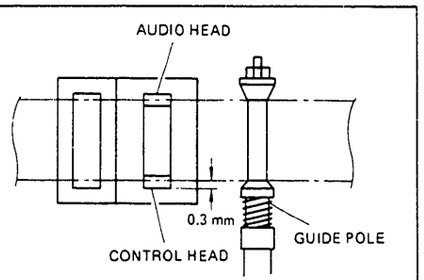


Fig. 53

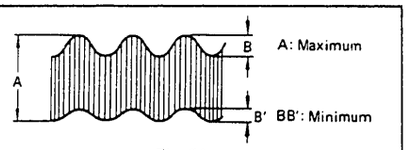


Fig. 54

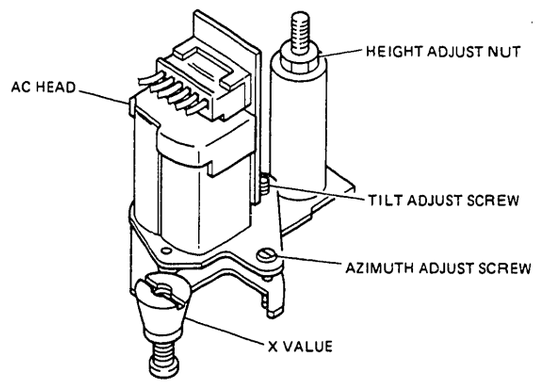


Fig. 55

AC HEAD PRECISE ADJUSTMENT

Jig required for adjustment

Alignment tape

Adjustment procedure

1) Connect an oscilloscope to the "AUDIO OUT" jack on the rear panel of the VTR.
2) Play back the audio 7 kHz section of the alignment tape. Adjust the tilt adjusting screw, azimuth adjusting screw and AC head height adjusting nut alternately so that the audio output is max., the envelope is flat and stable as shown in Fig. 54.
3) Connect the oscilloscope to the FM output pin (TP202).
4) Check that the FM output is maximum at the click point of the tracking control and the FM output starts dropping at the same angle to the left and right when the control is turned left and right from the click point while playing the alignment tape. When the FM output level does not start dropping at the same angle to the left and right, set the tracking control to the "clock" point and adjust the X value adjusting screw shown in Fig. 68. (When the control is turned clockwise and the FM signal output starts dropping earlier that when turned counter-clockwise, turn the X value adjusting screw clockwise.)
5) Check item 4 again.
6) Apply locking paint to the tilt adjusting screw, azimuth adjusting screw, AC head height adjusting nut and X value adjusting screw.
7) Adjust the play output and recording bias level as described in "Circuit adjustment".

(5) GUIDE ROLLER HEIGHT ADJUSTMENT

Jig required for adjustment

Alignment tape, hexagonal wrench

Adjustment procedure

1) Remove the top panel and sheild cover, and play back a blank tape. Check that conspicuous curling, protruding or lifting does not occur around the tape guide of the lower cylinder at that time. When any curling, protruding or lifting occurs, set the VTR to the stop mode after checking the back tension, and then loosen the guide roller fixing screw shown in Fig. 56 to set the VTR to the play mode again, and roughly adjust the guide roller height.
2) Connect the oscilloscope to the FM output terminal TP202.
3) Play back the alignment tape and adjust the tracking VR at the front of the VTR so that the FM signal output is max. Turn the tracking VR in either direction so that the FM signal output is 75% of the max. value, after adjustment is completed.
4) Check the FM signal envelope; conspicuous fluctuations should not be present and the ratio between the max. section and min. section (this is called "flatness"), 57% or more. When the FM signal waveform is as shown in Fig. 57 and below the specifications shown above, adjust the supply guide roller. On the other hand when the waveform is as shown in Fig. 58 and over the specifications shown above, adjust the take-up gudie roller. Do not turn the guide roller more than 1 turn, at that time.
5) Load a blank tape, and record the color bar signal or a TV program for 2 - 3 minutes in the "SP" speed mode.
6) Play back the section recorded in item 5). Check that the FM signal envelope is within the specifications described in item 4).
7) Tighten the guide roller fixing screw after adjustment is completed.

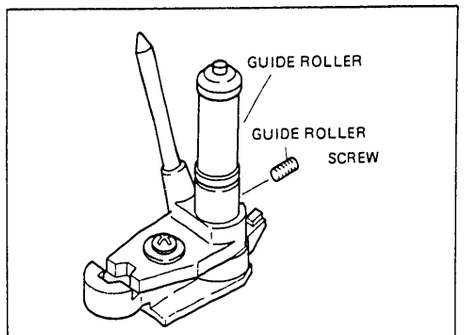


Fig. 56

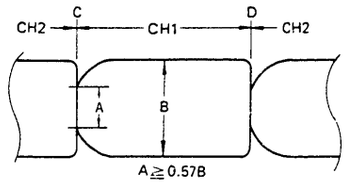


Fig. 57

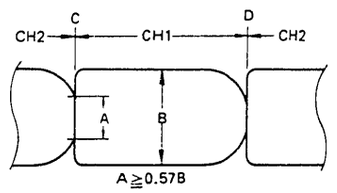


Fig. 58

8-3. COMPRESSION STRENGTH AND TORQUE

Item	VTR operation mode	Measured reel	Measurement value	Remarks
Pressure roller compression strength	PLAY-PAUSE	———	1.2±0.2 kg	Note 1 (Fig. 59)
Main brake torque	STOP	Supply & take-up reels	170g.cm or more	Note 2
Slack removal torque	Unloading	Supply reel	90 ~190g.cm	Note 2
F. FWD torque	Fast-forward	Take-up reel	400g.cm or more	Note 2
Rewind torque	Rewind	Supply reel	400g.cm or more	Note 2
Take-up torque	Play	Take-up reel	90 ~180g.cm	Note 2
Back tension torque	F. FWD	Supply reel	4 ~15g.cm	Note 3
	Rewind	Take-up reel		

Note 1

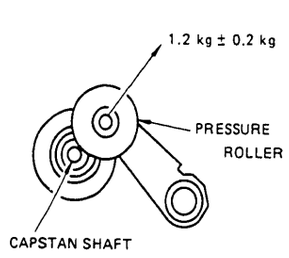


Fig. 59

Note 2: The value measured while sliding the torque gauge at the speed of 0.8 rps using the torque gauge and the torque gauge adaptor.
However, the main brake torque shows the value when measured while turning the take-up reel clockwise and the supply reel, counterclockwise by hand at the speed of 0.8 rps.

Note 3: The value measured while drawing the take-up reel disk counterclockwise and the supply reel disk counterclockwise and the supply reel disk, clockwise at the speed of 50 mm/s using the dummy reel and fan type tension gauge.

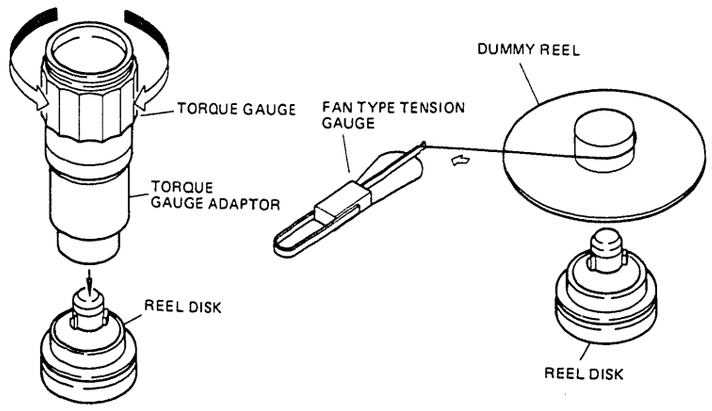
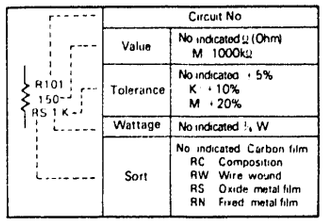


Fig. 60

SCHEMATIC/CIRCUIT BOARD DIAGRAMS

Note

1 Voltage measured at base of chassis with minimum volume control and no signal
( ) are shown in recording condition
2 Nomenclature of Resistors and Capacitors

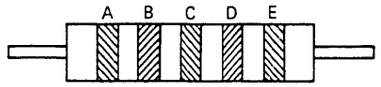


Circuit No		
Value	No indicated Ω (Ohm) M 1000kΩ	
Tolerance	No indicated ± 5% K ± 10% M ± 20%	
Wattage	No indicated 1/4 W	
Sort	No indicated Carbon film RC Composition RW Wire wound RS Oxide metal film RN Fixed metal film	
Circuit No		
Value	No indicated μF P PF	
Tolerance	No indicated ± 10% J ± 5% M ± 20% Z + 80%, 20% D ± 0.5pF C ± 0.25pF	
Sort		Ceramic
		Electrolitic
	M	Mylar
	P	Polyester
	S	Styrol
Voltage	No indicated 50WV	

3 Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort
4 When replacing capacitors marked With * use specified ones stated on parts list since required temperature characteristics

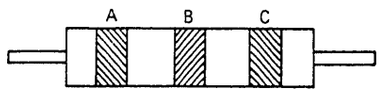
HOW TO READ CAPACITY AND INDUCTANCE OF RESISTOR SHAPE CAPACITORS AND COILS

CAPACITOR



CAPACITY: (10A+B)xC [PF]
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL



INDUCTANCE: (10A+B)xC [μH]

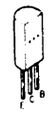
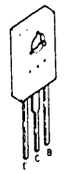
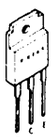
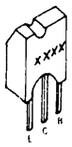
COLOR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

Cautions on use of MOS IC

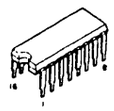
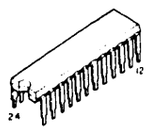
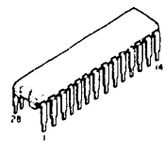
1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during doldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a workers should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

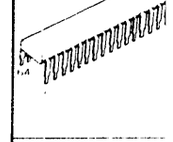
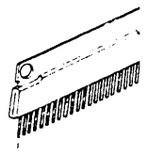
SEMICONDUCTOR CONFIGURATION

TRANSISTOR

1	2	3	4	5	6
					
2SC2021 DTC124	2SA952 2SC1213 2SC1845 2SA844 2SA1198	2SD468	2SB772	2SD1510	2SB642

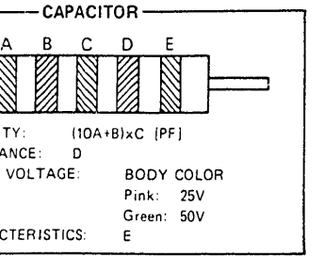
IC

7	8	9	10
			
MSL9378RS	HA11749	μPC1363	HA11747

11	15
	
HD388250	HA13403

DIAGRAMS

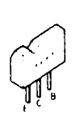
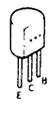
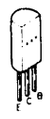
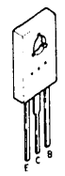
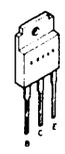
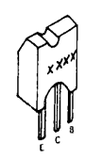
CAPACITY AND INDUCTANCE OF PE CAPACITORS AND COILS



C	D	E
10°	±20%	For temperature compensation
10^1		
10^2		
10^3		
10^4		
10^5		
	±30%	High dielectric constant type
		For temperature compensation
10^{-1}	± 5%	
10^{-2}	±10%	High dielectric constant type

SEMICONDUCTOR CONFIGURATION

TRANSISTOR

1	2	3	4	5	6
					
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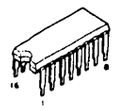
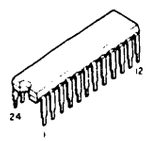
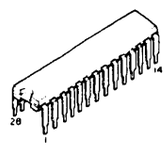
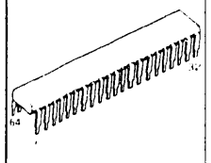
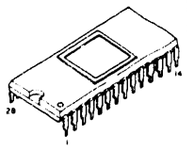
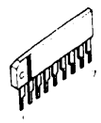
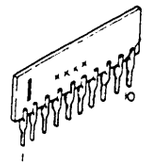
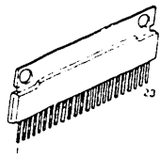
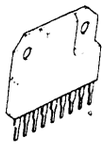
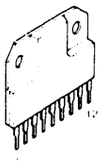
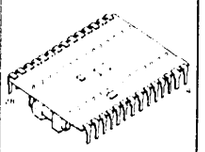
IC

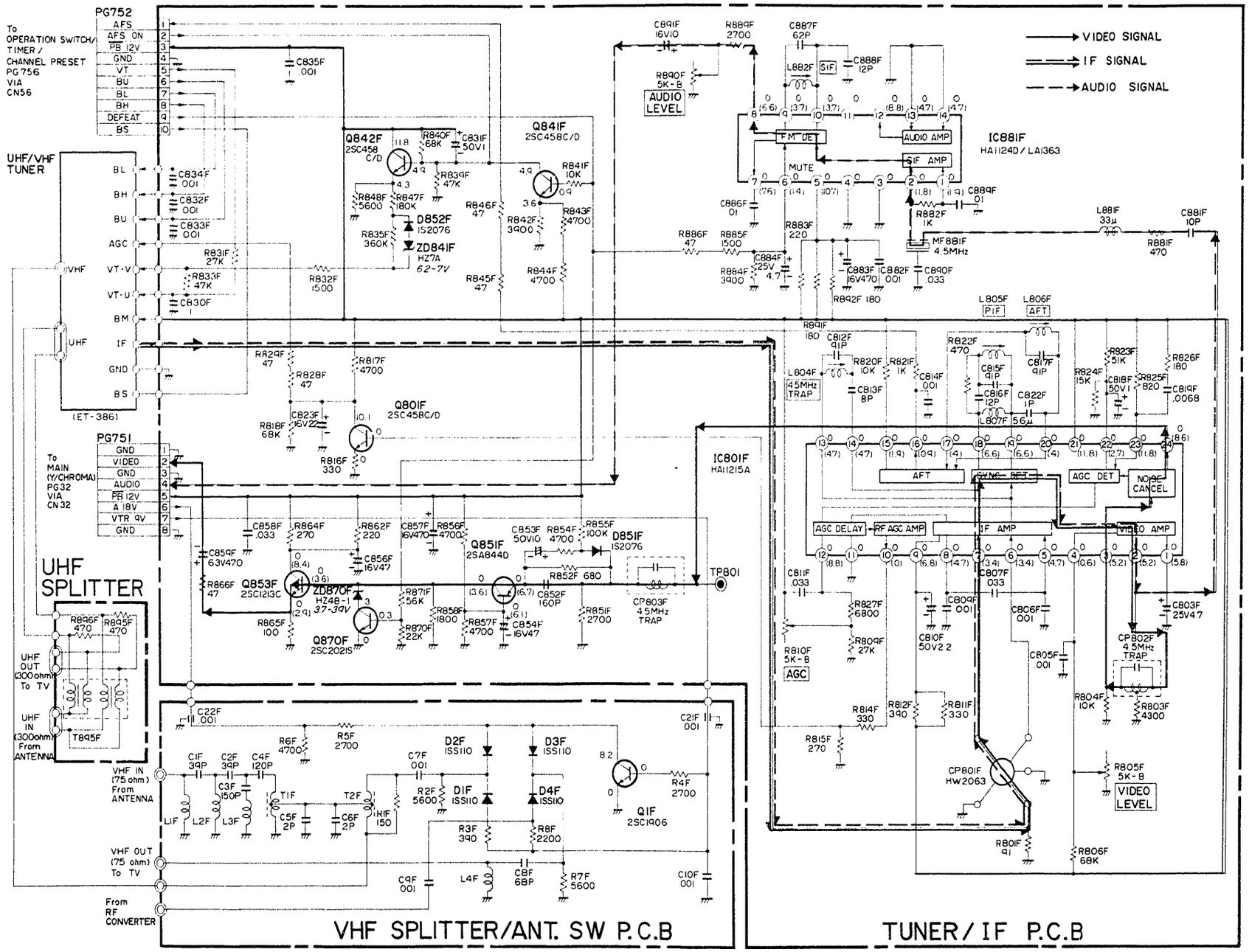
7	8	9	10
			
MSL9378RS	HA11749	μPC1363	HA11747

11	12	13	14
			
HD388250	HA11747	μPC566H3	TA4390

15	16	17	18
			
HA13403	M54543L	M54548L	HT4234 HT4235 HT4236

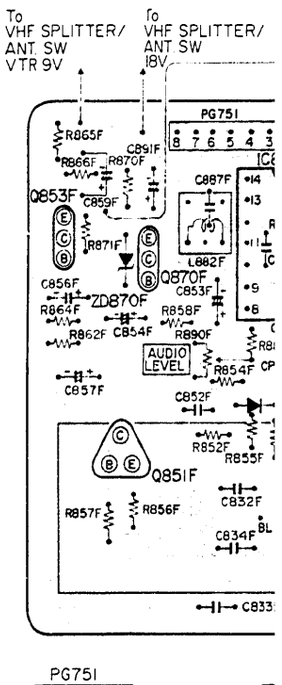
TUNER/IF

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

IF



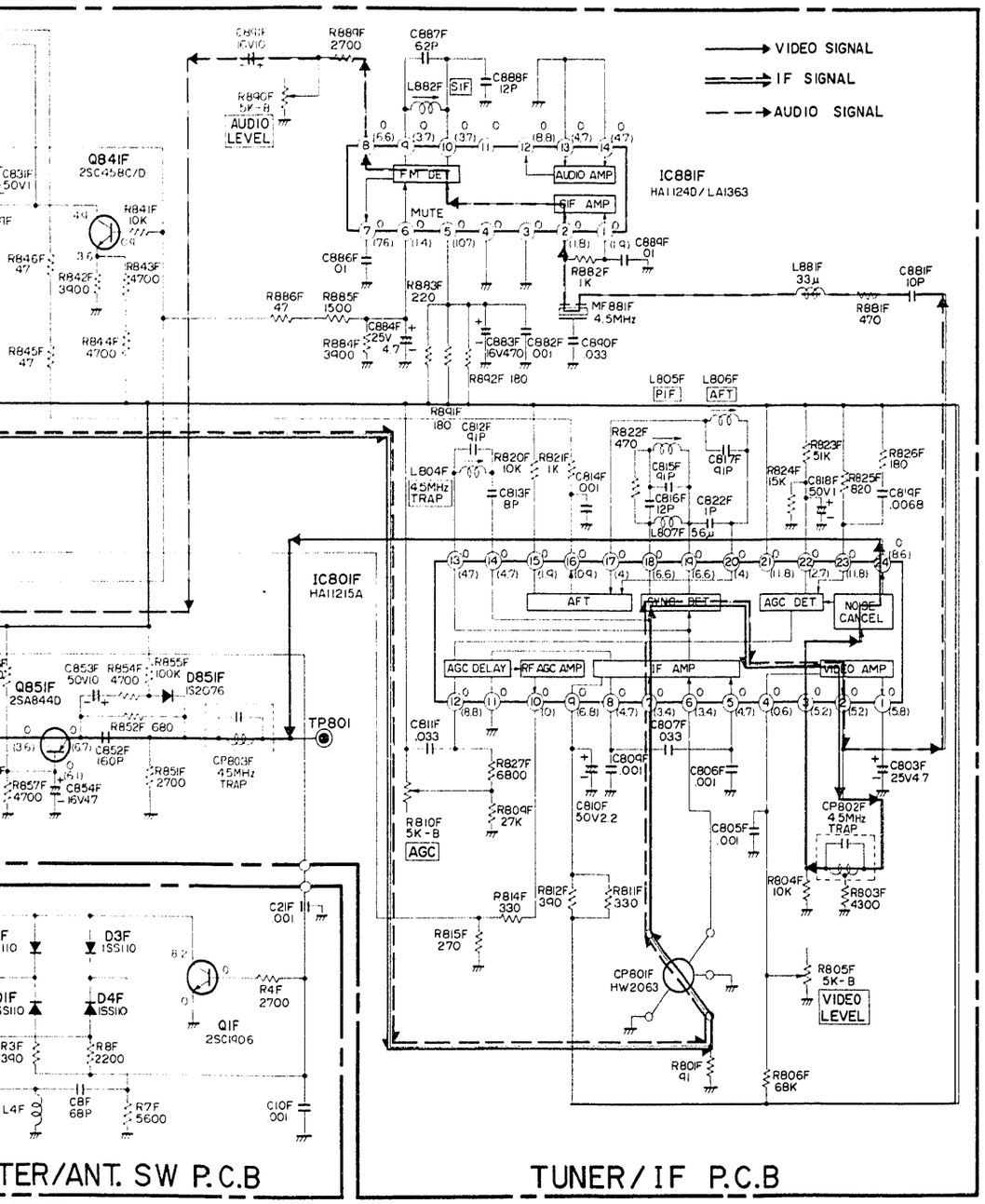
PG751

1	GND
2	VIDEO
3	GND
4	AUDIO
5	12V
6	18V
7	VTR 9V
8	GND

To MAIN (Y/CHROMA) PG32 VIA CN32

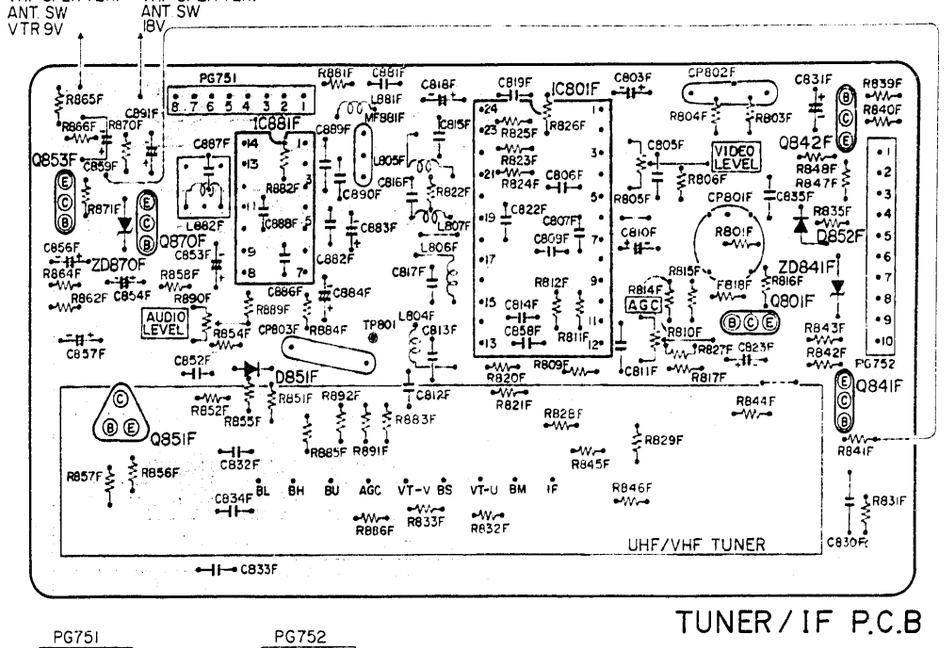
VHF ANT

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

IF

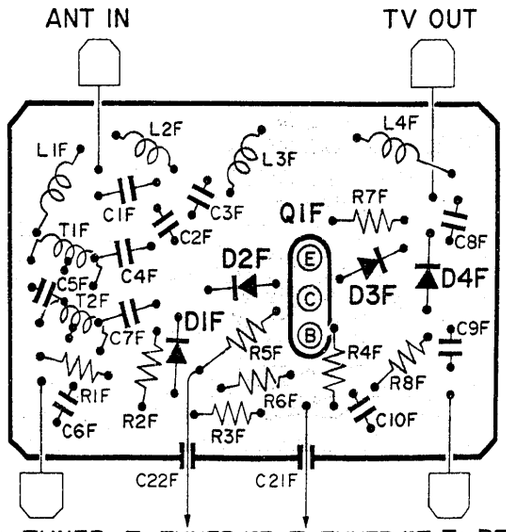


TUNER / IF P.C.B

PG751		
1	GND	To MAIN (Y/CHROMA) PG32 VIA CN32
2	VIDEO	
3	GND	
4	AUDIO	
5	12V	
6	18V	
7	VTR 9V	
8	GND	

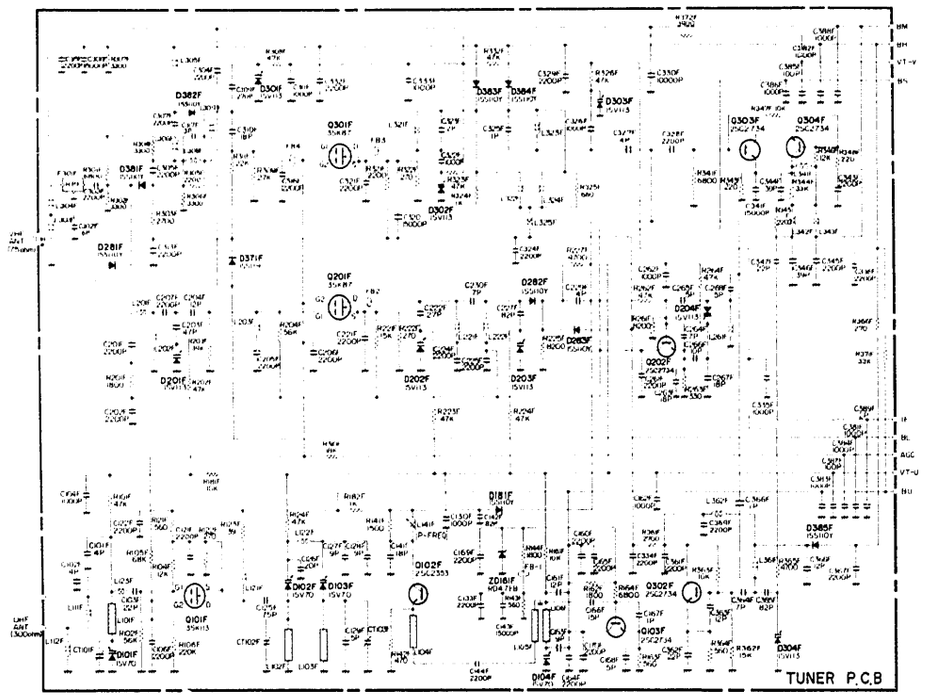
PG752		
1	AFS	To OPERATION SWITCH/ TIMER/CHANNEL PRESET P.C.B PG756 VIA CN56
2	AFS ON	
3	12V	
4	GND	
5	VT	
6	BU	
7	BL	
8	BH	
9	DEFEAT	
10	BS	

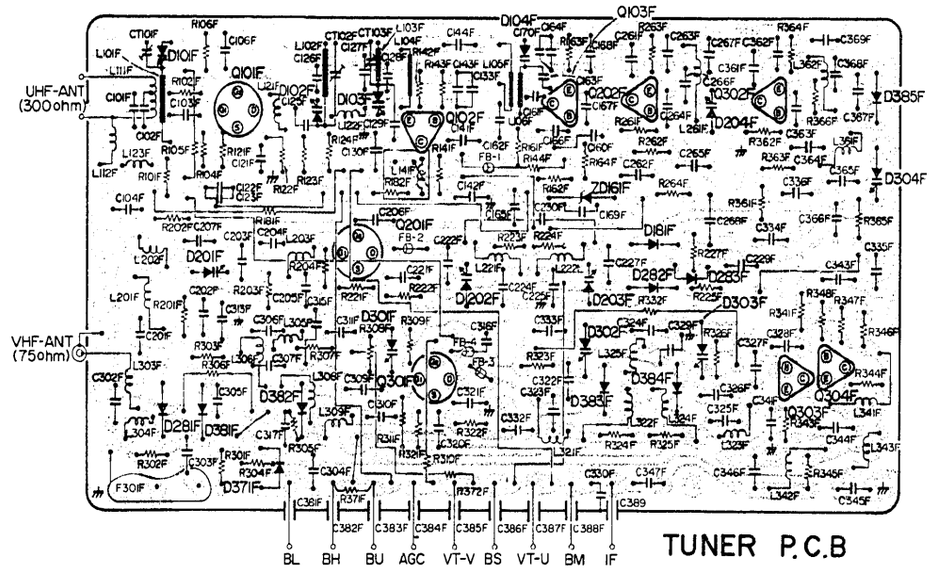
VHF ANT



TUNER PACK

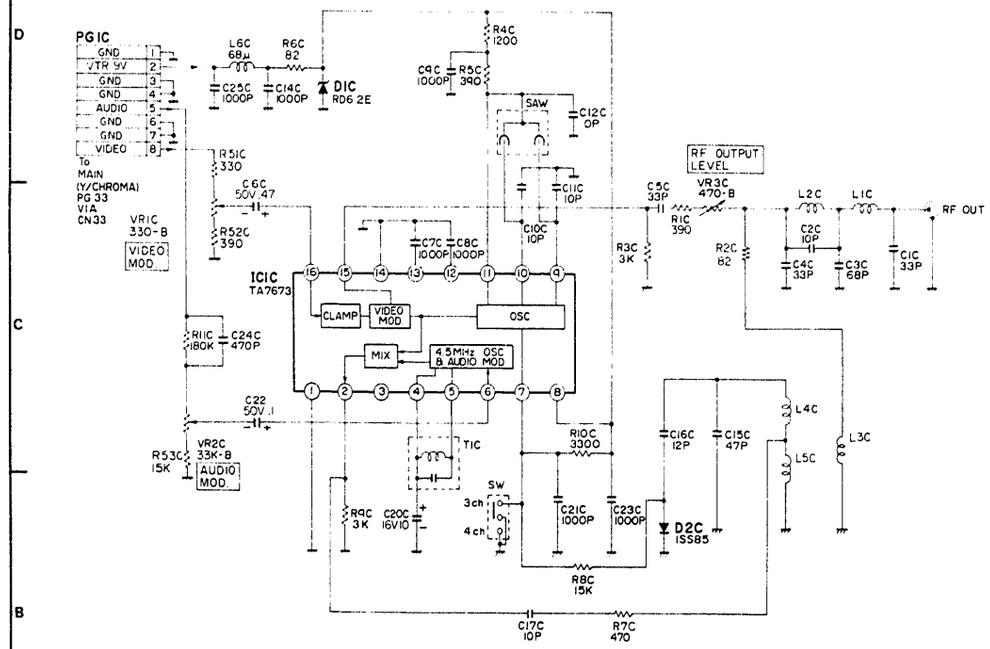
SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91





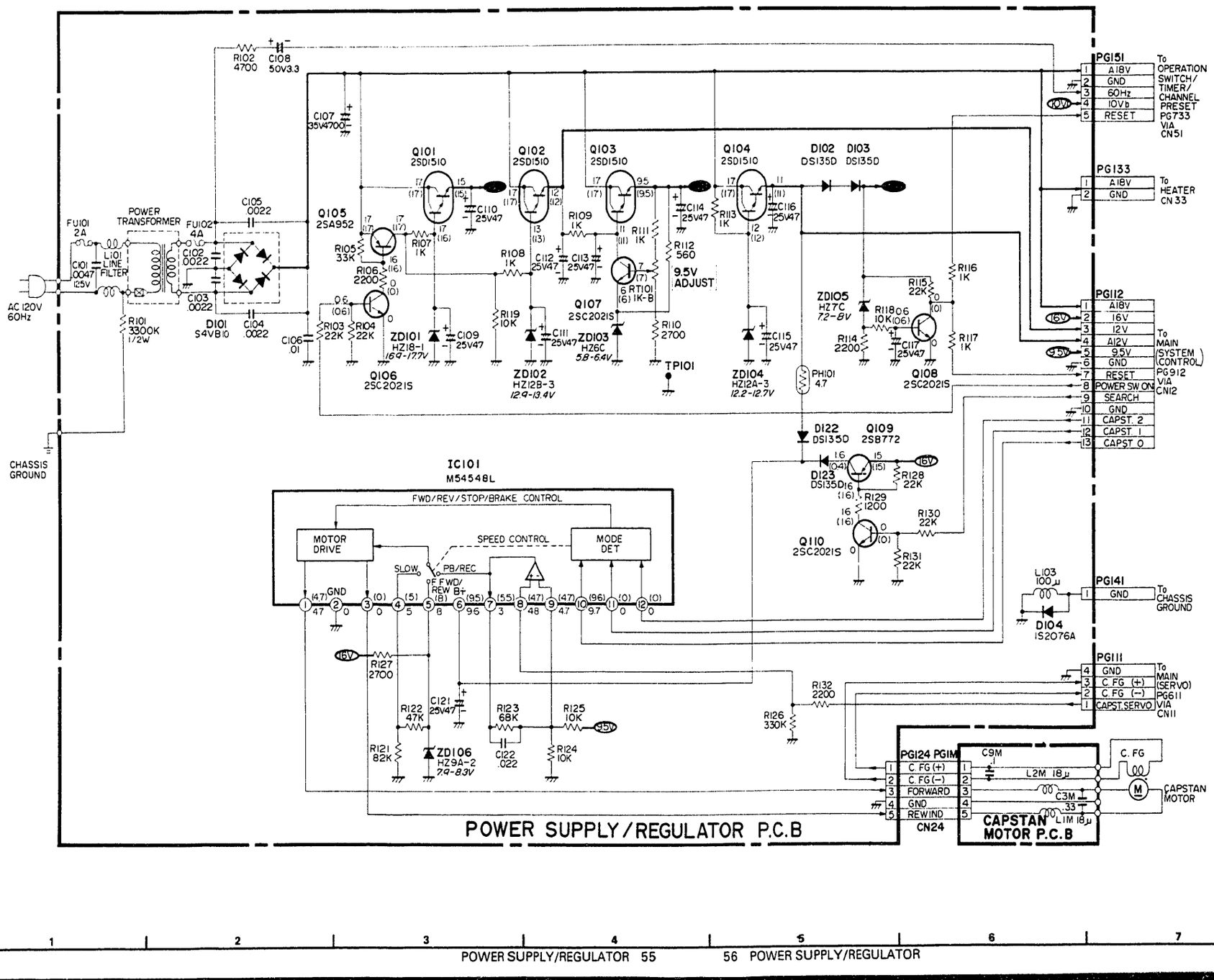
RF CONVERTER

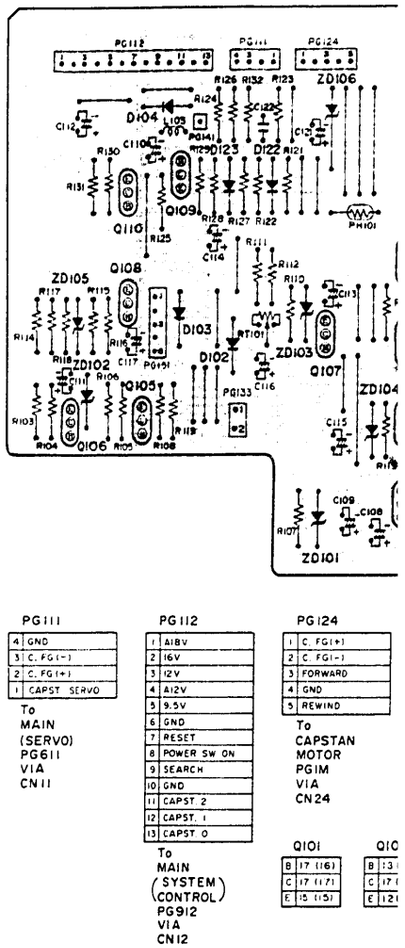
SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



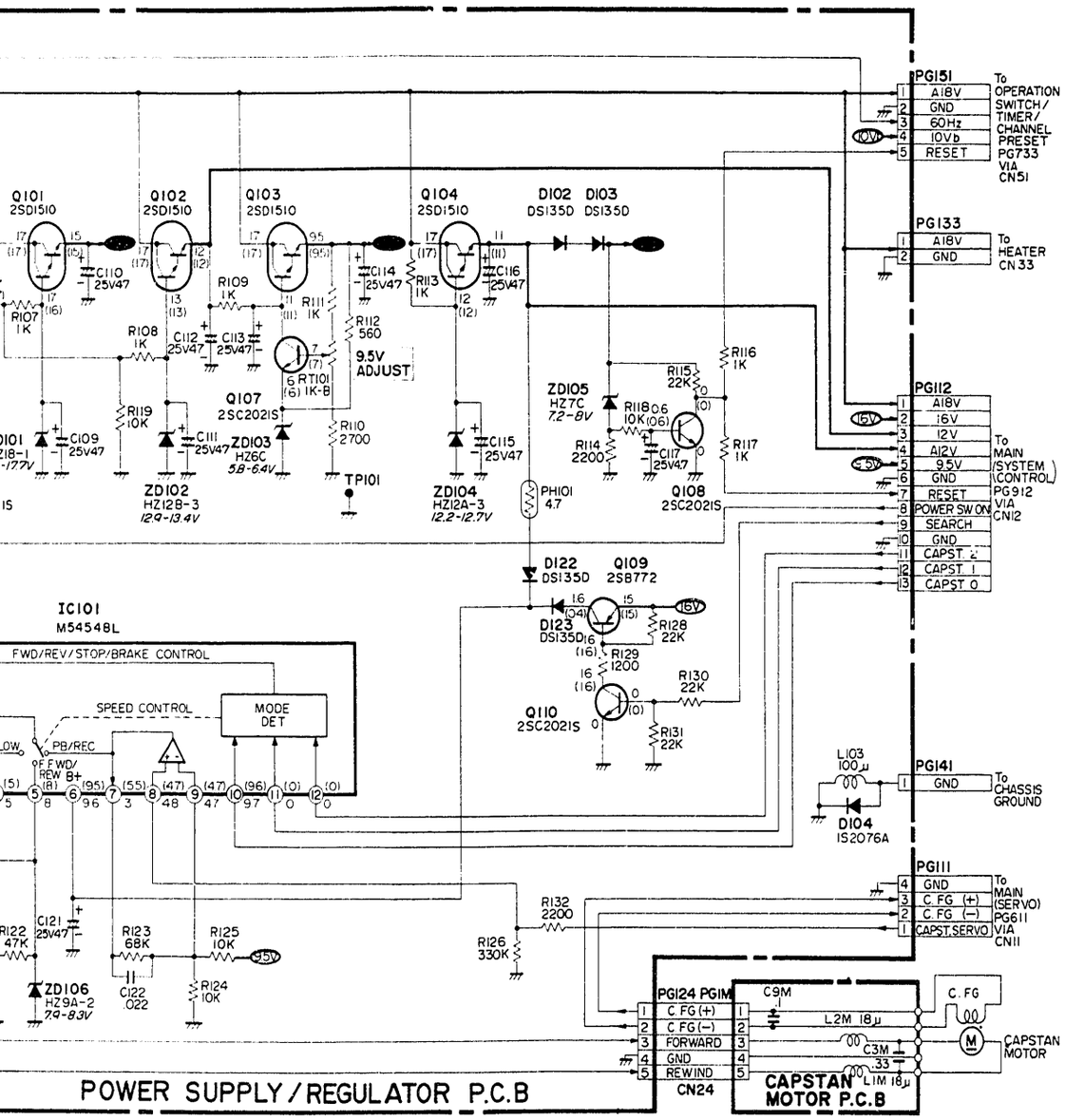
POWER SUPPLY/REGULATOR

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
		REMOTE CONTROL (RX)	89
Y/CHROMA	64	REMOTE CONTROL (TX)	91
AUDIO	69		

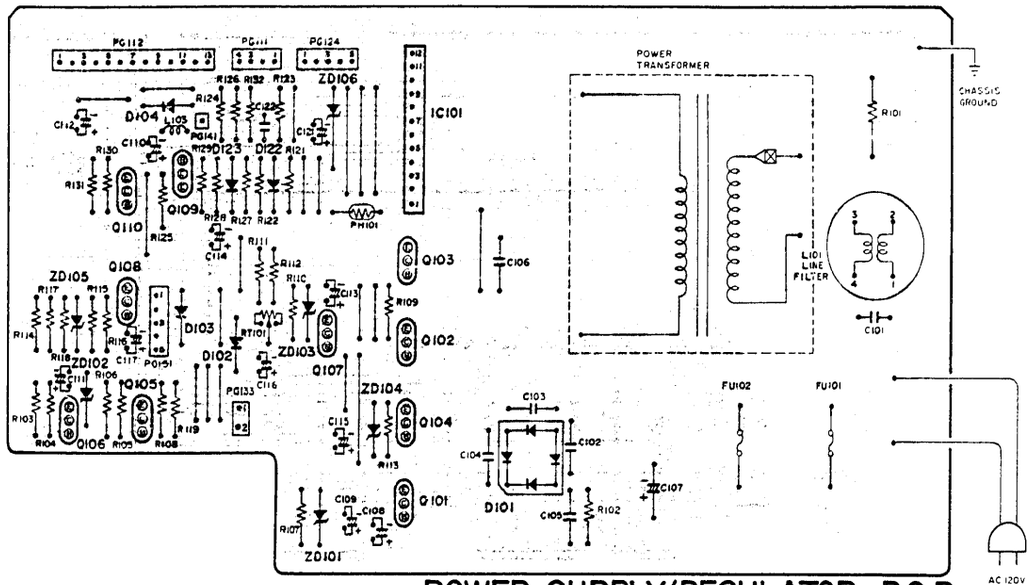




SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/RECULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
		REMOTE CONTROL (RX)	89
Y/CHROMA	64	REMOTE CONTROL (TX)	91
AUDIO	69		



POWER SUPPLY/REGULATOR P.C.B



PG111

4	GND
3	C. FG(−)
2	C. FG(+)
1	CAPST SERVO

To MAIN (SERVO) PG611 VIA CN11

PG112

1	A18V
2	16V
3	12V
4	A12V
5	9.5V
6	GND
7	RESET
8	POWER SW ON
9	SEARCH
10	GND
11	CAPST. 2
12	CAPST. 1
13	CAPST. 0

To MAIN (SYSTEM CONTROL) PG912 VIA CN12

PG124

1	C. FG(+)
2	C. FG(−)
3	FORWARD
4	GND
5	REWIND

To CAPSTAN MOTOR PGIM VIA CN24

PG141

1	GND

To CHASSIS GROUND

PG151

1	A18V
2	GND
3	60Hz
4	10Vb
5	RESET

To OPERATION SWITCH/ TIMER/CHANNEL PRESET PG733 VIA CN51

PG133

1	A18V
2	GND

To HEATER CN33

IC101

12	0 (0)
11	0 (0)
10	9.7 (9.6)
9	4.7 (4.7)
8	4.8 (4.7)
7	3 (5.5)
6	9.6 (9.5)
5	8 (8)
4	5 (5.1)
3	0 (0)
2	0
1	4.7 (4.7)

Q101

B	17 (16)
C	17 (17)
E	15 (15)

Q102

B	13 (13)
C	17 (17)
E	12 (12)

Q103

B	11 (11)
C	17 (17)
E	9.5 (9.5)

Q104

B	12 (12)
C	17 (17)
E	11 (11)

Q105

B	16 (16)
C	17 (17)
E	17 (17)

Q106

B	0.6 (0.6)
C	0 (0)
E	0

Q107

B	7 (7)
C	11 (11)
E	6 (6)

Q108

B	0.6 (0.6)
C	0 (0)
E	0

Q109

B	16 (16)
C	16 (10.4)
E	15 (15)

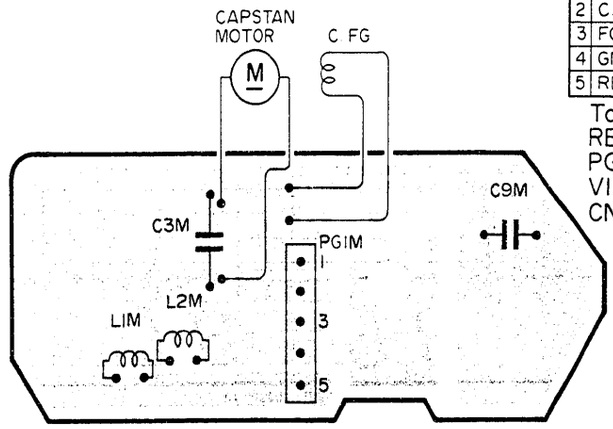
Q110

B	0 (0)
C	16 (16)
E	0

PGIM

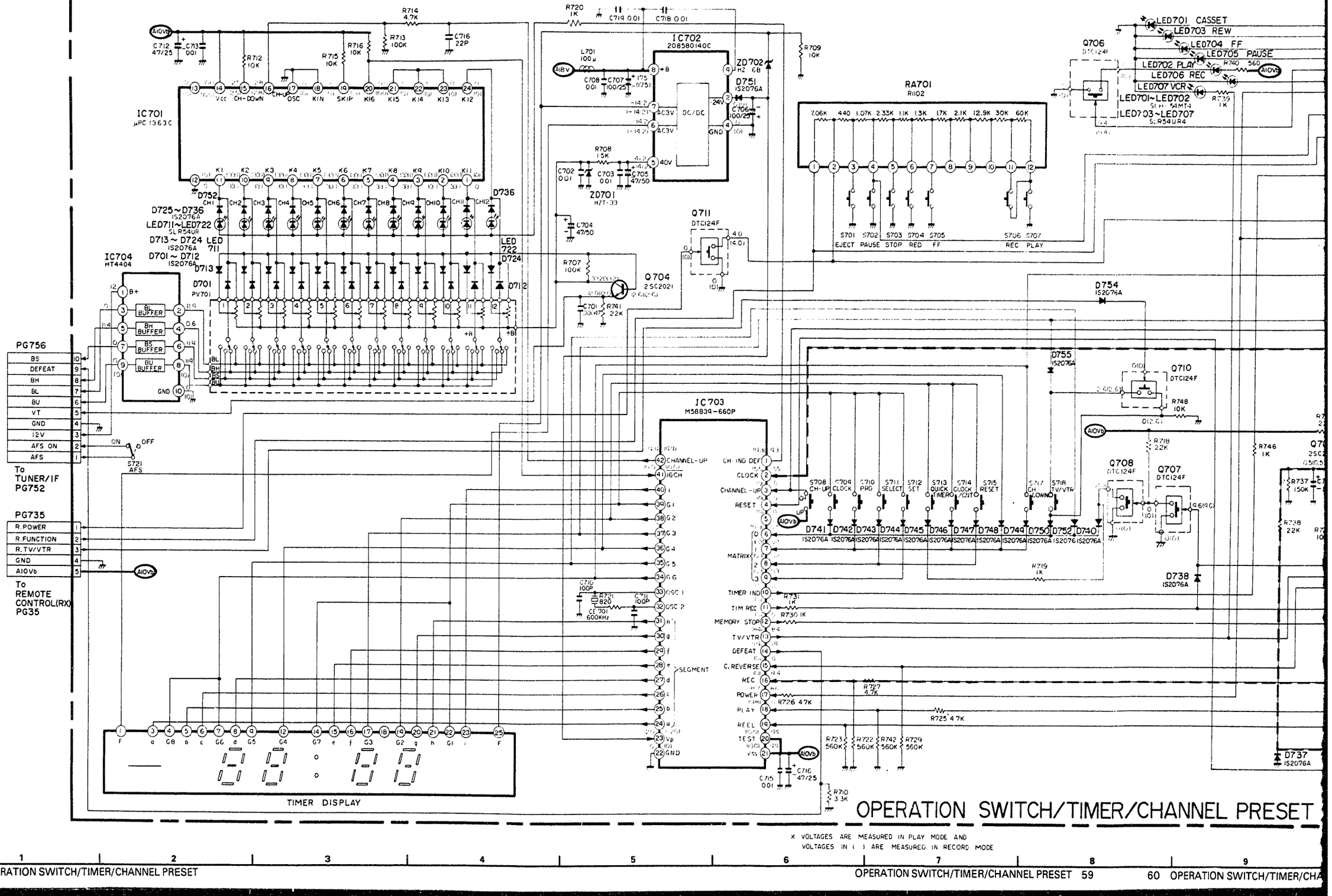
1	C. FG(+)
2	C. FG(−)
3	FORWARD
4	GND
5	REWIND

To REGULATOR PG124 VIA CN24



CAPSTAN MOTOR P.C.B

OPERATION SWITCH/TIMER/CHANNEL PRESET



X VOLTAGES ARE MEASURED IN PLAY MODE AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE

OPERATION SWITCH/TIMER/CHANNEL PRESET

SCHEMATIC DIAGRAM	PAGE
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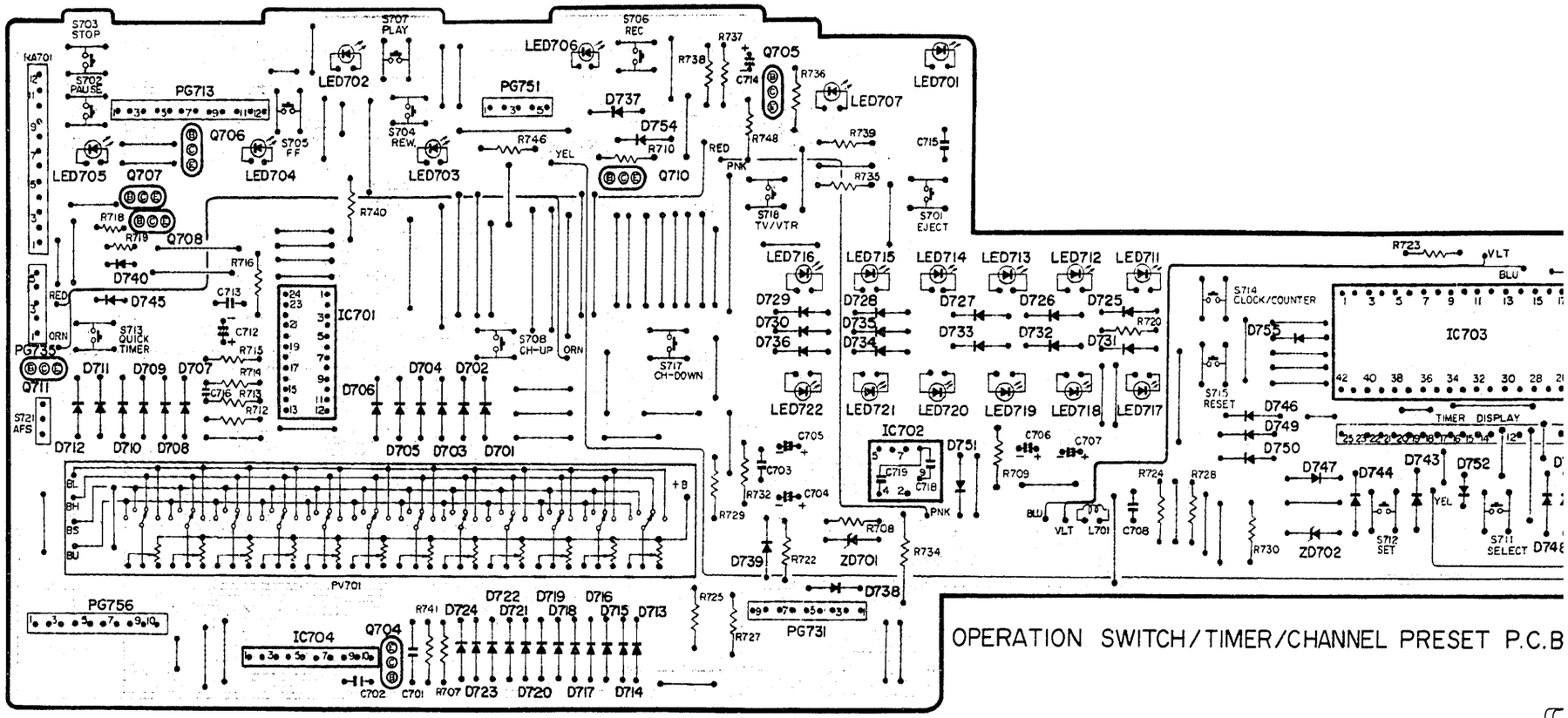
OPERATION SWITCH/TIMER/CHANNEL PRESET P.C.B

X VOLTAGES ARE MEASURED IN PLAY MODE AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE

NOTE



OPERATION SWITCH/TIMER/CHANNEL PRESET P.C.B

PG713

1	TAPE IN INDI.
2	REWIND INDI.
3	F.FORWARD INDI.
4	PAUSE INDI.
5	PLAY INDI.
6	RECORD INDI.
7	POWER INDI.
8	TIMER INDI.
9	REMOTE
10	GND
11	FUNCTION
12	T. STAND-BY

To MAIN (SYSTEM CONTROL) PG913

PG751

1	A18V
2	GND
3	60Hz
4	A10Vb
5	RESET

To POWER SUPPLY /REGULATOR PG151

PG731

1	SAFETY
2	TV/VTR
3	C.REVERSE
4	TIM REC
5	MEMORY STOP
6	CHANNEL-UP
7	REC/PAUSE
8	REEL
9	PLAY

To MAIN (SYSTEM CONTROL) PG931

PG735

1	R.POWER
2	R.FUNCTION
3	R.TV/VTR
4	GND
5	A10Vb

To REMOTE CONTROL(RX) PG35

PG756

1	AFS
2	AFS ON
3	12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEFEAT
10	BS

To TUNER/IF PG752

IC701

24	0(0)	1	0(0)
23	0(0)	2	33.1(33.1)
22	0(0)	3	33.1(33.1)
21	0(0)	4	33.1(33.1)
20	10.0(10.0)	5	33.1(33.1)
19	1.1(1.1)	6	33.1(33.1)
18	0(0)	7	33.1(33.1)
17	0(0)	8	33.1(33.1)
16	2.8(2.8)	9	33.1(33.1)
15	2.5(2.5)	10	33.1(33.1)
14	10.0(10.0)	11	33.1(33.1)
13	0(0)	12	0(0)

IC702

5	6	7	8
4.1 2(4.1 2)	-14.2(-14.2)	-14.2(-14.2)	17.5(17.5)
4	——	2	9
0(0)	——	0(0)	——

Q704

B	12.6(12.6)
C	33.2(33.2)
E	12.0(12.0)

Q705

B	0.5(10.5)
C	5.5(5.5)
E	0(0)

Q706

B	9.4(9.4)
C	0(0)
E	0(0)

Q707

B	9.6(9.6)
C	0(0)
E	0(0)

Q708

B	0(0)
C	0(0)
E	0(0)

Q710

B	0(0)
C	2.6(2.6)
E	0(2.6)

Q711

B	0(0)
C	4.0(4.0)
E	0(0)

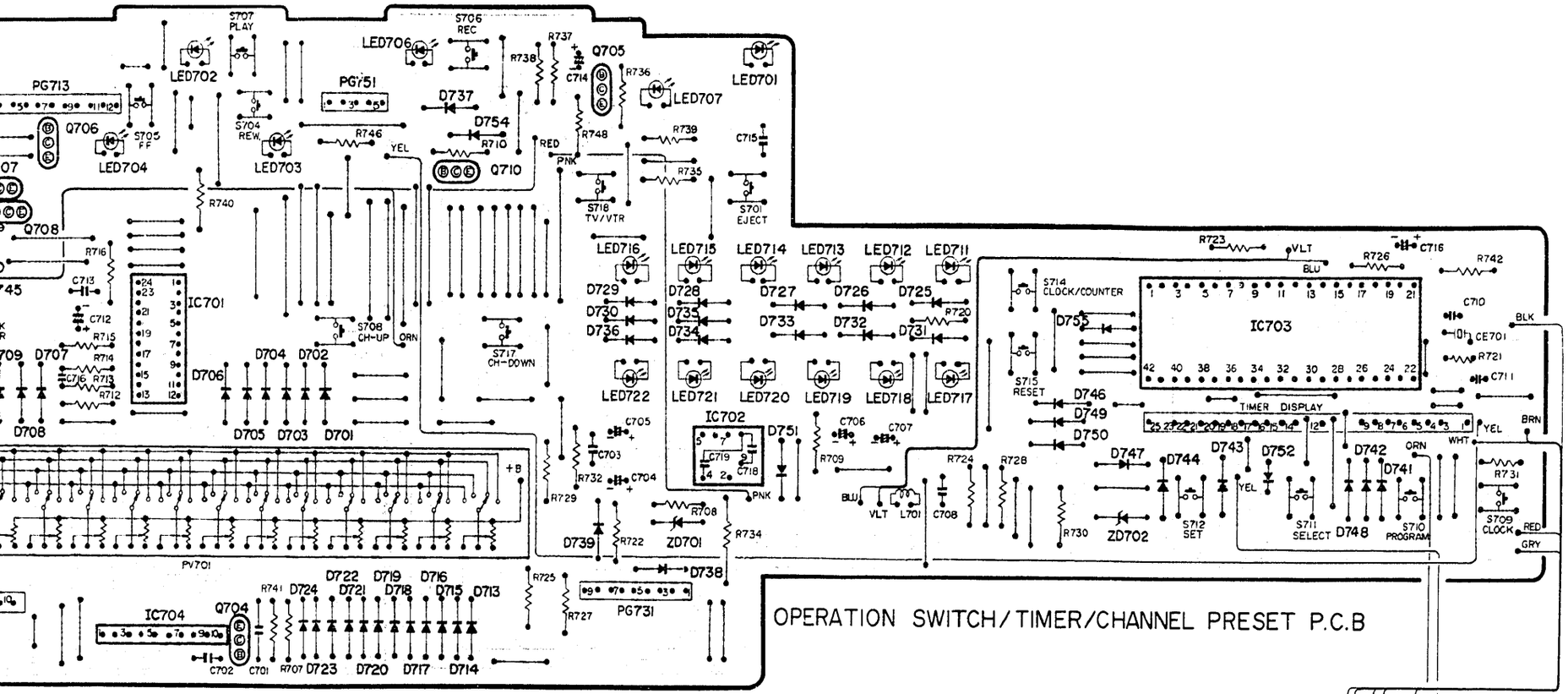
IC703

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
9.3(9.3)	5.5(5.5)	0(0)	0(0)	0(0)	0.3(0.3)	0.3(0.3)	0.3(0.3)	0.3(0.3)	0(0)	0(0)	0(0)	8.4(8.4)	1.9(1.9)	0(0)	9.4(0)	8.6(8.7)	0(9.8)	——	9.9(10.0)	9.9(10.0)
42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
9.9(9.9)	10.0(10.0)	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	——	-20(-20)	0(0)

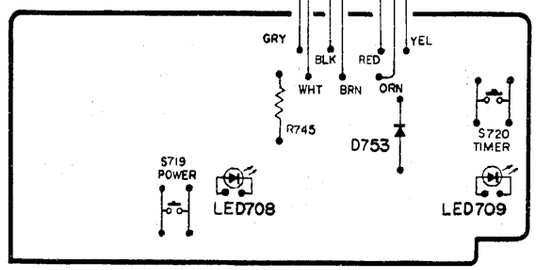
IC704

1	2	3	4	5	6	7	8	9	10
(12)	(11.9)	(0)	(0.6)	(0)	(11.9)	(0)	11.9(0)	0(0)	0(0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.



OPERATION SWITCH/TIMER/CHANNEL PRESET P.C.B



LED P.C.B

PG731

1	SAFETY
2	TV/VTR
3	C.REVERSE
4	TIM.REC
5	MEMORY STOP
6	CHANNEL-UP
7	REC/PAUSE
8	REEL
9	PLAY

To MAIN (SYSTEM CONTROL) PG931

PG735

1	R.POWER
2	R.FUNCTION
3	R.TV/VTR
4	GND
5	A10Vb

To REMOTE CONTROL(RX) PG35

PG756

1	AFS
2	AFS ON
3	12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEFEAT
10	BS

To TUNER/IF PG752

IC701

24	0 (0)	1	0 (0)
23	0 (0)	2	33 (33)
22	0 (0)	3	33 (33)
21	0 (0)	4	33 (33)
20	10.0 (10.0)	5	33 (33.1)
19	1.1 (1.1)	6	33 (33.1)
18	0 (0)	7	33 (33.1)
17	0 (0)	8	33 (33.1)
16	2.8 (2.8)	9	33 (33.1)
15	2.5 (2.5)	10	33 (33.1)
14	10.0 (10.0)	11	33 (33.1)
13	0 (0)	12	0 (0)

IC702

5	6	7	8
4.2 (4.2)	14.2 (14.2)	14.2 (14.2)	17.5 (17.5)
4	—	2	9
0 (0)	—	0 (0)	—

Q704

B	12.6 (12.6)
C	33.2 (33.2)
E	12.0 (12.0)

Q705

B	0.5 (0.5)
C	5.5 (5.5)
E	0 (0)

Q706

B	9.4 (9.4)
C	0 (0)
E	0 (0)

Q707

B	9.6 (9.6)
C	0 (0)
E	0 (0)

Q708

B	0 (0)
C	0 (0)
E	0 (0)

Q710

B	0 (0)
C	2.6 (2.6)
E	0 (2.6)

Q711

B	0 (0)
C	4.0 (4.0)
E	0 (0)

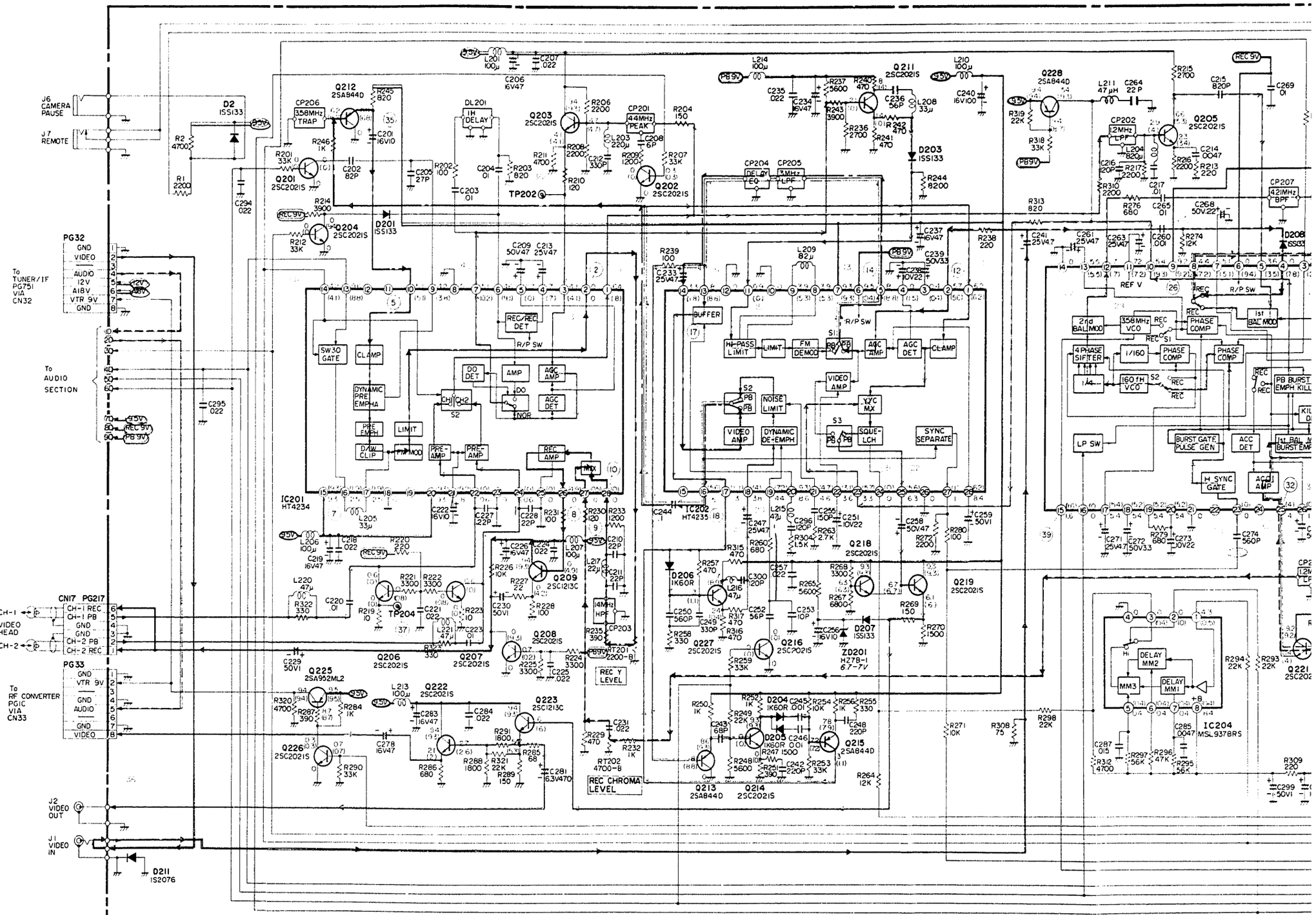
IC703

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
9.3 (9.3)	5.5 (5.5)	0 (0)	0 (0)	0 (0)	0.3 (0.3)	0.3 (0.3)	0.3 (0.3)	0.3 (0.3)	0 (0)	0 (0)	0 (0)	8.4 (8.4)	1.9 (1.9)	0 (0)	9.4 (0)	8.6 (8.7)	0 (9.8)	—	9.9 (10.0)	9.9 (10.0)
42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
9.9 (9.9)	10.0 (10.0)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-20 (-20)	0 (0)

IC704

1	2	3	4	5	6	7	8	9	10
(12)	(11.9)	(0)	10.6	(0)	(11.9)	(0)	11.9 (0)	0 (0)	0 (0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


MAIN (LUMINANCE/CHROMA SECTION
* VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.
J6 CAMERA PAUSE
J7 REMOTE
PG32
To TUNER/IF PG751 VIA CN32
To AUDIO SECTION
CN17 PG217
VIDEO HEAD
PG33
To RF CONVERTER PGIC VIA CN33
J2 VIDEO OUT
J1 VIDEO IN
D211 1S2076
IC201 HT4234
IC202 HT4235-18
IC204 MSL937BRS
Q201 2SC2021S
Q202 2SC2021S
Q203 2SC2021S
Q204 2SC2021S
Q205 2SC2021S
Q206 2SC2021S
Q207 2SC2021S
Q208 2SC2021S
Q209 2SC1213C
Q211 2SC2021S
Q212 2SA844D
Q213 2SA844D
Q214 2SC2021S
Q215 2SA844D
Q216 2SC2021S
Q218 2SC2021S
Q219 2SC2021S
Q222 2SC2021S
Q223 2SC1213C
Q225 2SA952ML2
Q226 2SC2021S
Q227 2SC2021S
Q228 2SA844D
D201 1SS133
D203 1SS133
D204 1K60R
D205 1K60R
D206 1K60R
D207 1SS133
D208 1SS133
ZD201 HZ7B-1 6.7-7V
RT201 2200-B
RT202 4700-B
TP202
TP204
REC Y LEVEL
REC CHROMA LEVEL
CP206 3.58MHz TRAP
CP201 4.4MHz PEAK
CP204 DELAY
CP205 3MHz LPF
CP202 12MHz LPF
CP207 4.21MHz BPF
DL201 1H DELAY
4MHz HPF
SW30 GATE
CLAMP
REC/REC DET
R/P SW
DO DET
AMP
AGC AMP
AGC DET
DYNAMIC PRE EMPHA
PRE EMPH
LIMIT
DAW CLIP
FM MOD
PRE-AMP
REC AMP
BUFFER
HI-PASS LIMIT
FM DEMOD
VIDEO AMP
NOISE LIMIT
DYNAMIC DE-EMPH
SYNC SEPARATE
SQUE-LCH
Y/C MX
REF V
1st BAL MOD
2nd BAL MOD
358MHz VCO
4 PHASE SIFTER
1/160
1/4
160 1H VCO
PHASE COMP
PB BURST EMPH KILL
LP SW
BURST GATE PULSE GEN
ACC DET
H SYNC GATE
ACC AMP
DELAY MM2
DELAY MM1
MM3

SCHEMATIC DIAGRAM	PAGE
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SERVO	80
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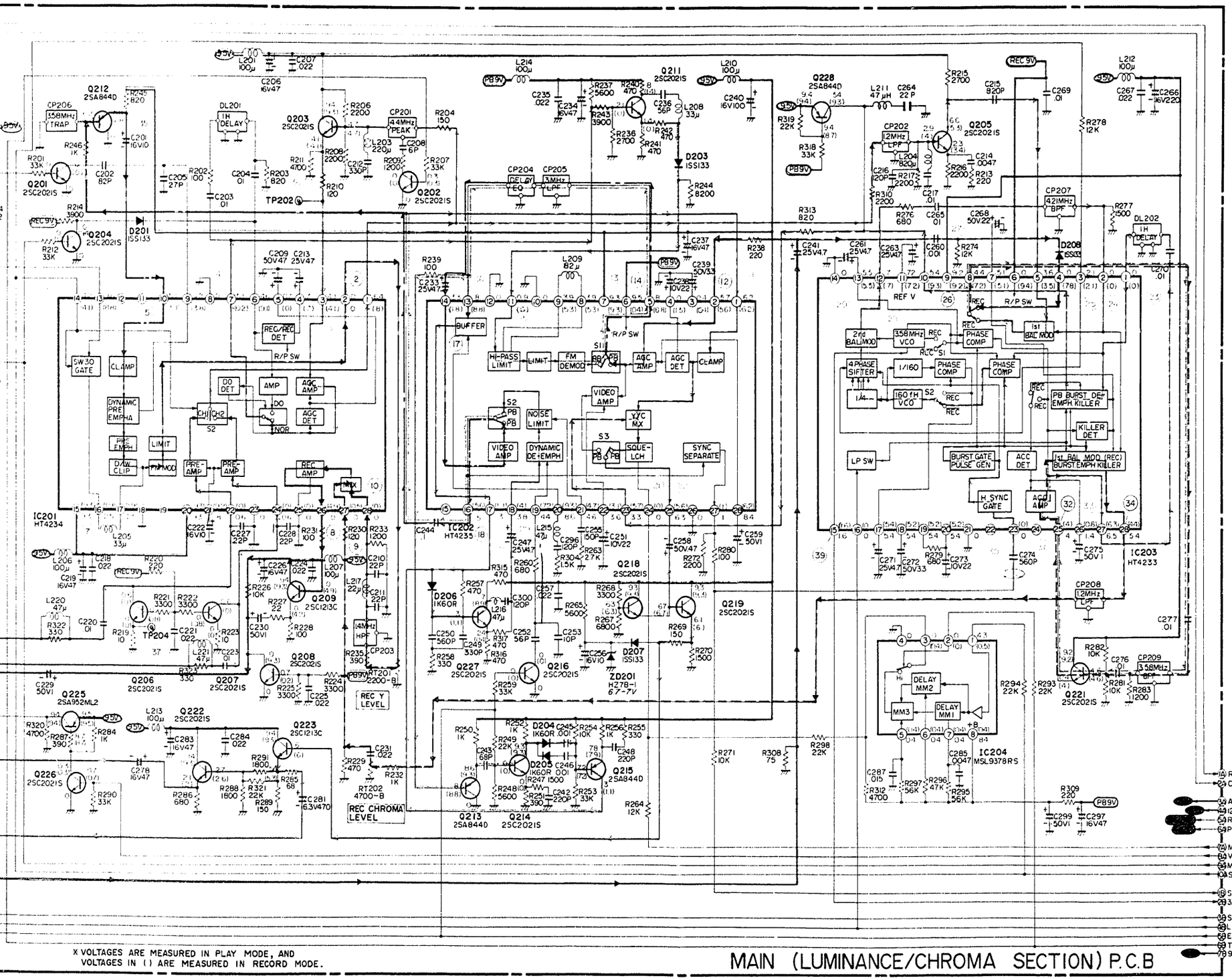
I.R RECEIVER	88
REMOTE CONTROL (RX)	89
REMOTE CONTROL (TX)	91



X VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

MAIN (LUMINANCE/CHROMA SECTION) P.C.B

Y/CHROMA WAVEFORMS

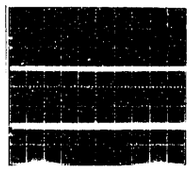
INPUT: Colorbar signal (2Vp-p)
Playback: Alignment tape (* When there are two waveforms, one is that of the SW30Hz pulse.)

[IC201]

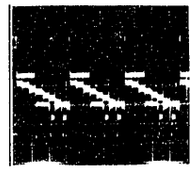
① PIN1 PB
0.2V/5ms. div.

⑥ PIN14 PB/REC
2V/10ms. div.

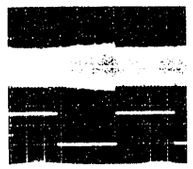
② PIN2 REC
0.5V/2ms. div.



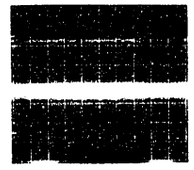
⑦ PIN16 REC
0.2V/20μs. div.



③ PIN3 PB
0.1V/5ms. div.

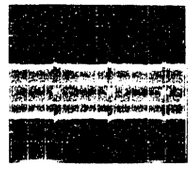


⑧ PIN26 REC
1V/5ms. div.

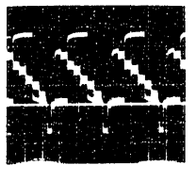


④ PIN7 PB
0.5V/5ms. div.

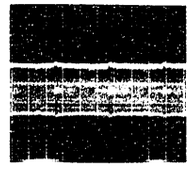
⑨ PIN27 REC
0.1V/20μs. div.



⑤ PIN10 REC
0.2V/20μs. div.

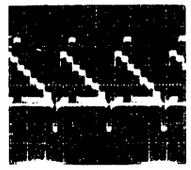


⑩ PIN28 REC
0.1V/20μs. div.

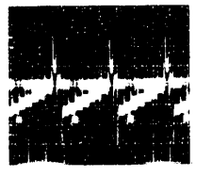


[IC202]

⑪ PIN1 PB
0.2V/20μs. div.



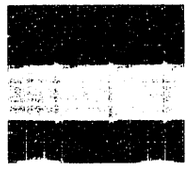
⑯ PIN13 PB
0.1V/20 μs. div.



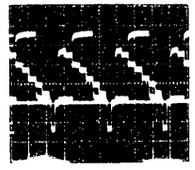
⑫ PIN2 REC
0.2V/20μs. div.

⑰ PIN14 REC
0.1V/20μs. div.

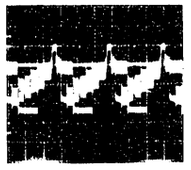
⑬ PIN5 PB
1V/20μs. div.



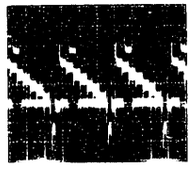
⑱ PIN16 REC
0.2V/20μs. div.



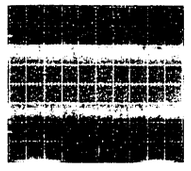
⑭ PIN5 REC
1V/20μs. div.



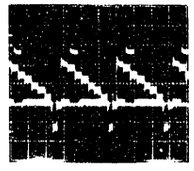
⑲ PIN17 PB
0.2V/20μs. div.



⑮ PIN11 PB
50mV/20ms. div.

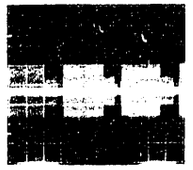


⑳ PIN18 PB
0.2V/20μs. div.

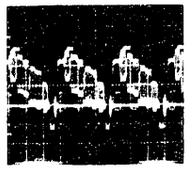


[IC202]

㉑ PIN23 PB
0.1V/5ms. div.

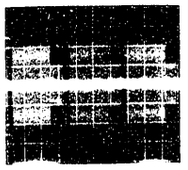


㉒ PIN25 PB
0.5V/20μs. div.

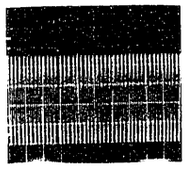


[IC203]

㉓ PIN1 PB
50mV/5ms. div.



㉔ PIN2 PB/REC
0.1V/1μs. div.

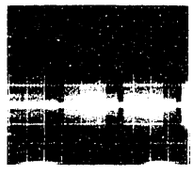


[IC203]

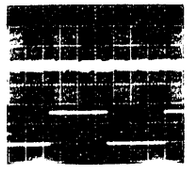
㉕ PIN4 REC
0.2V/20μs. div.

㉚ PIN23 PB/REC
0.5V/20μs. div.

㉖ PIN8 PB
0.5V/5ms. div.



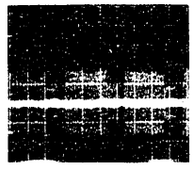
㉛ PIN25 REC
50mV/5ms. div.



㉗ PIN8 REC
0.1V/20μs. div.

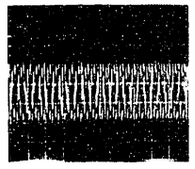
㉜ PIN25 PB
0.2V/5ms. div.

㉘ PIN10 PB
0.1V/5ms. div.

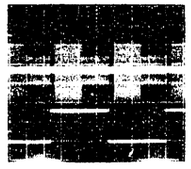


㉝ PIN27 PB
0.2V/5ms. div.

㉙ PIN12 PB/REC
0.5V/2μs. div.

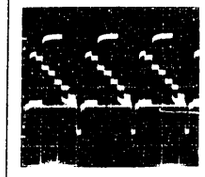


㉞ PIN28 REC
0.1V/5ms. div.

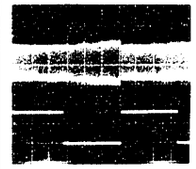


[TEST POINT]

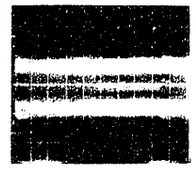
㉟ Q212(Emitter) REC
0.2V/20μs. div.



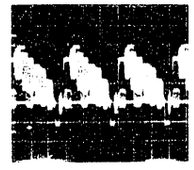
㊱ TP202 PB
0.1V/5ms. div.



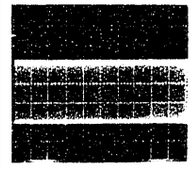
㊲ TP204 REC
50mV/2ms. div.



㊳ J2(V.OUT) PB
0.5V/20μs. div.

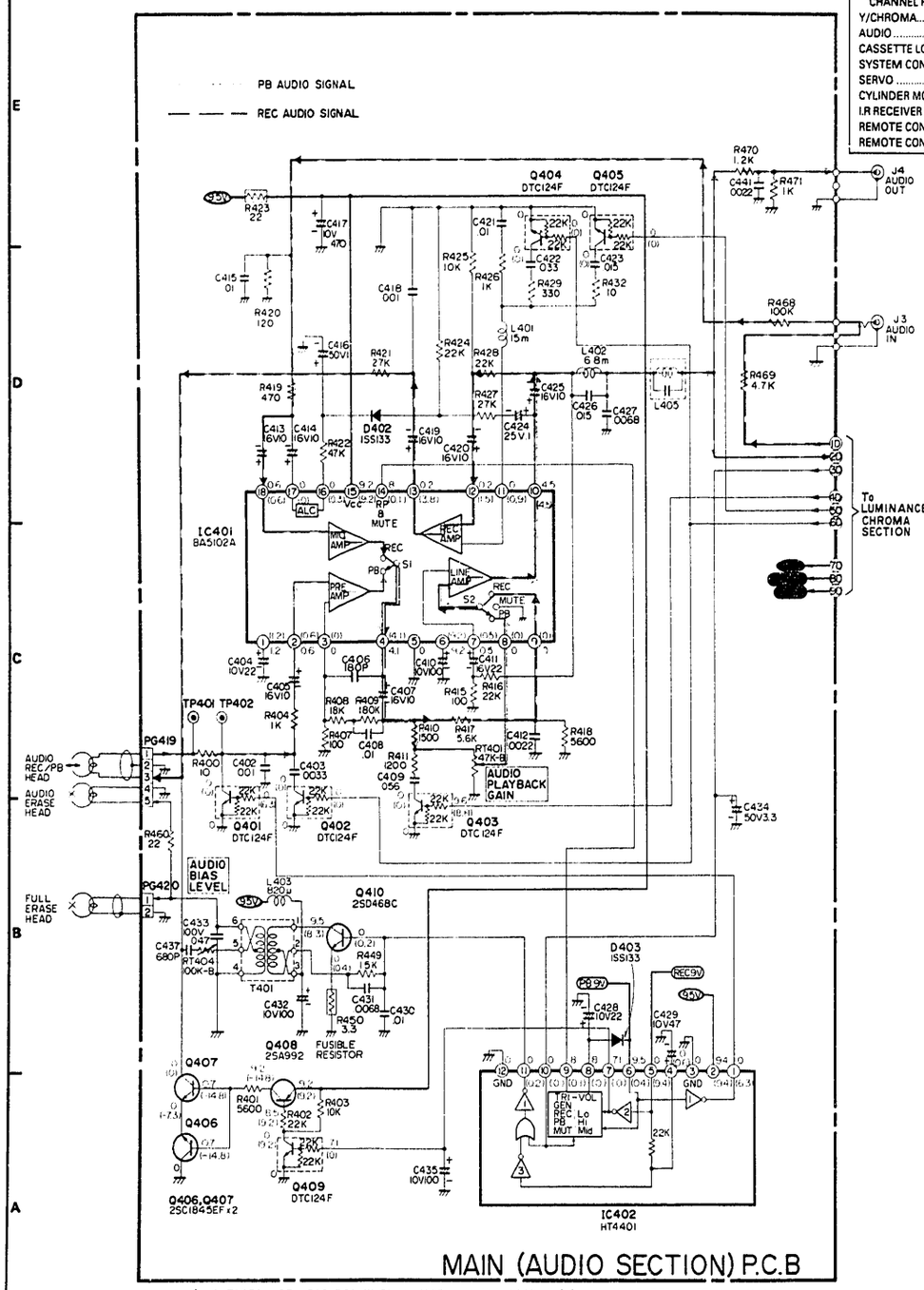


㊴ IC203(PIN15) REC
0.1V/2ms. div.



AUDIO

SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50
TUNER PACK	53
RF CONVERTER	54
POWER SUPPLY/REGULATOR	55
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58
Y/CHROMA	64
AUDIO	69
CASSETTE LOADING MOTOR	73
SYSTEM CONTROL	74
SERVO	80
CYLINDER MOTOR	86
I.R RECEIVER	88
REMOTE CONTROL (RX)	89
REMOTE CONTROL (TX)	91



IC401

1	2	3	4	5	6	7	8	9
1.2(1.2)	0.6(0.6)	0(0)	4.1(4.1)	0	9.2(9.2)	0.5(0.5)	0(0)	0(0)
18	17	16	15	14	13	12	11	10
0.6(0.6)	0(0)	0(0.3)	9.2(9.2)	8 (0.1)	0.2(3.8)	0.2 (1.5)	0(0.9)	4.5(4.5)

IC402

12	11	10	9	8	7	6	5	4	3	2	1
0	0 (0.2)	0(0)	8 (0.1)	8 (0)	7. 1 (0)	9.5 (0.4)	0 (9.4)	0 (0.6)	0	9.4 (9.4)	0 (6.3)

Q401

B	0 (6.3)
C	0 (0)
E	0

Q402

B	0 (0)
C	0 (0)
E	0

Q403

B	9.6(8.8)
C	0 (0)
E	0

Q404

B	0 (0)
C	0 (0)
E	0

Q405

B	0 (0)
C	0 (0)
E	0

Q406

B	0.7(-14.8)
C	0
E	0(-7.3)

Q407

B	0.7(-14.8)
C	0 (0)
E	0(-7.3)

Q408

B	8.5(9.2)
C	9.2(-14.8)
E	9.2(9.2)

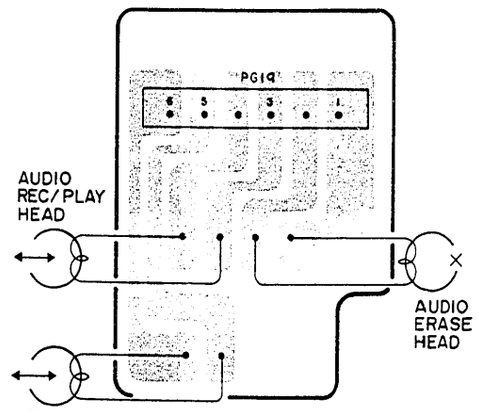
Q409

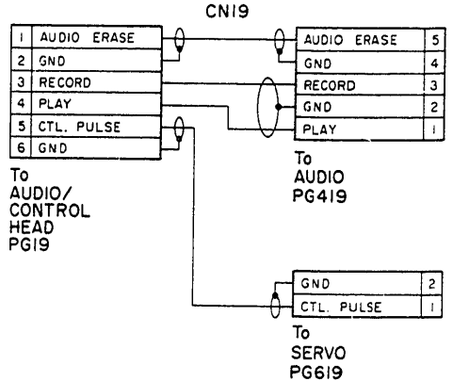
B	7.1(0)
C	0(9.2)
E	0

Q410

B	0(0.2)
C	9.5(8.3)
E	0 (0.4)

※ VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

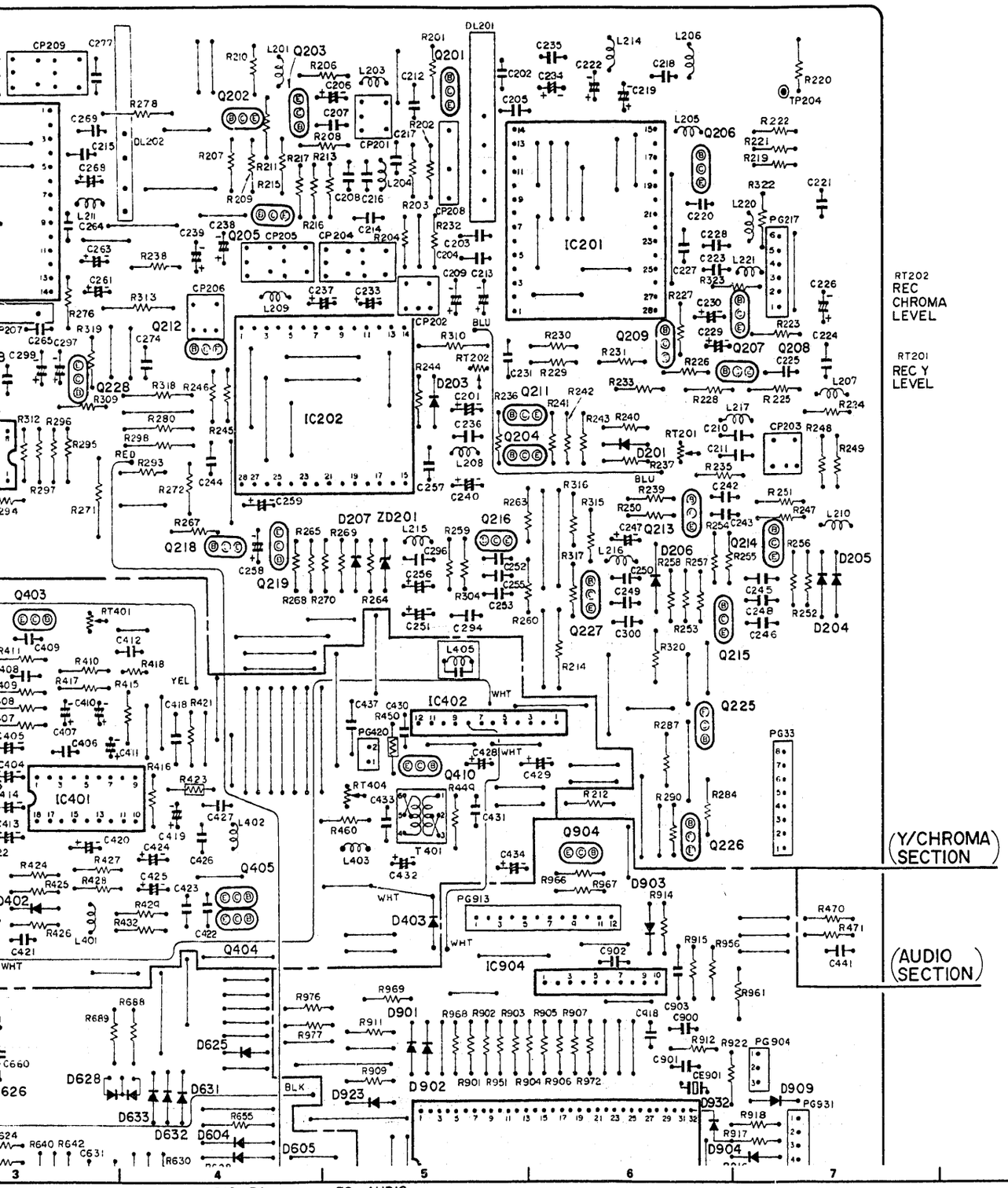




J7 REMOTE
J6 CAMERA PAUSE
J1 VIDEO IN
J3 AUDIO IN
RT401 AUDIO PLAYBACK LEVEL
RV601 TRACKING
RT404 AUDIO REC BIAS LEVEL
RT601 TRACKING PRESET
RT202 REC CHROMA LEVEL
RT201 REC Y LEVEL
(AUDIO SECTION)
(Y/CHROMA SECTION)
(AUDIO SECTION)
CASSETTE LOADING MOTOR

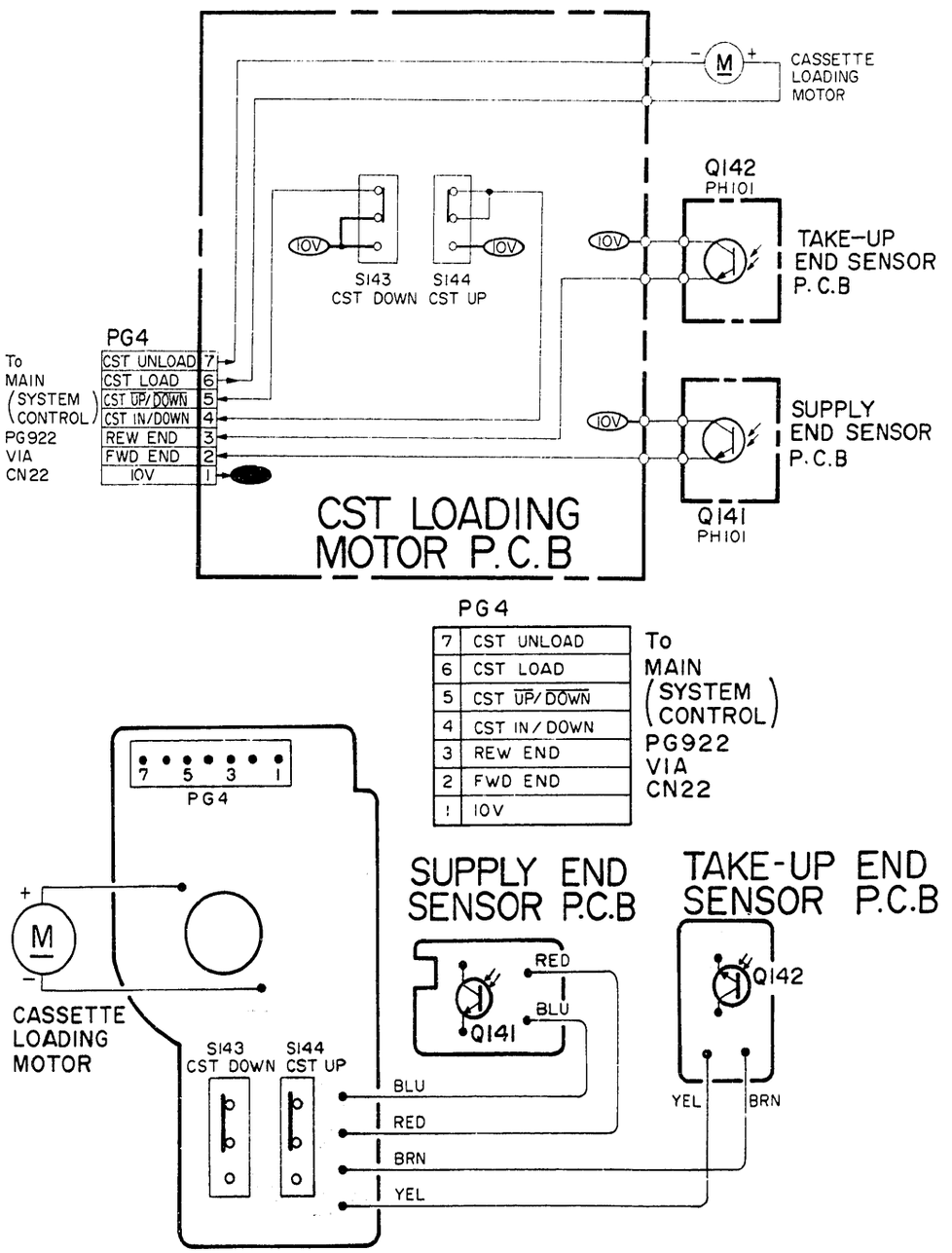
PG4
To MAIN (SYSTEM CONTROL) PG922 VIA CN22

CST UNLOAD	7
CST LOAD	6
CST UP/DOWN	5
CST IN/DOWN	4
REW END	3
FWD END	2
IOV	1



CASSETTE LOADING MOTOR

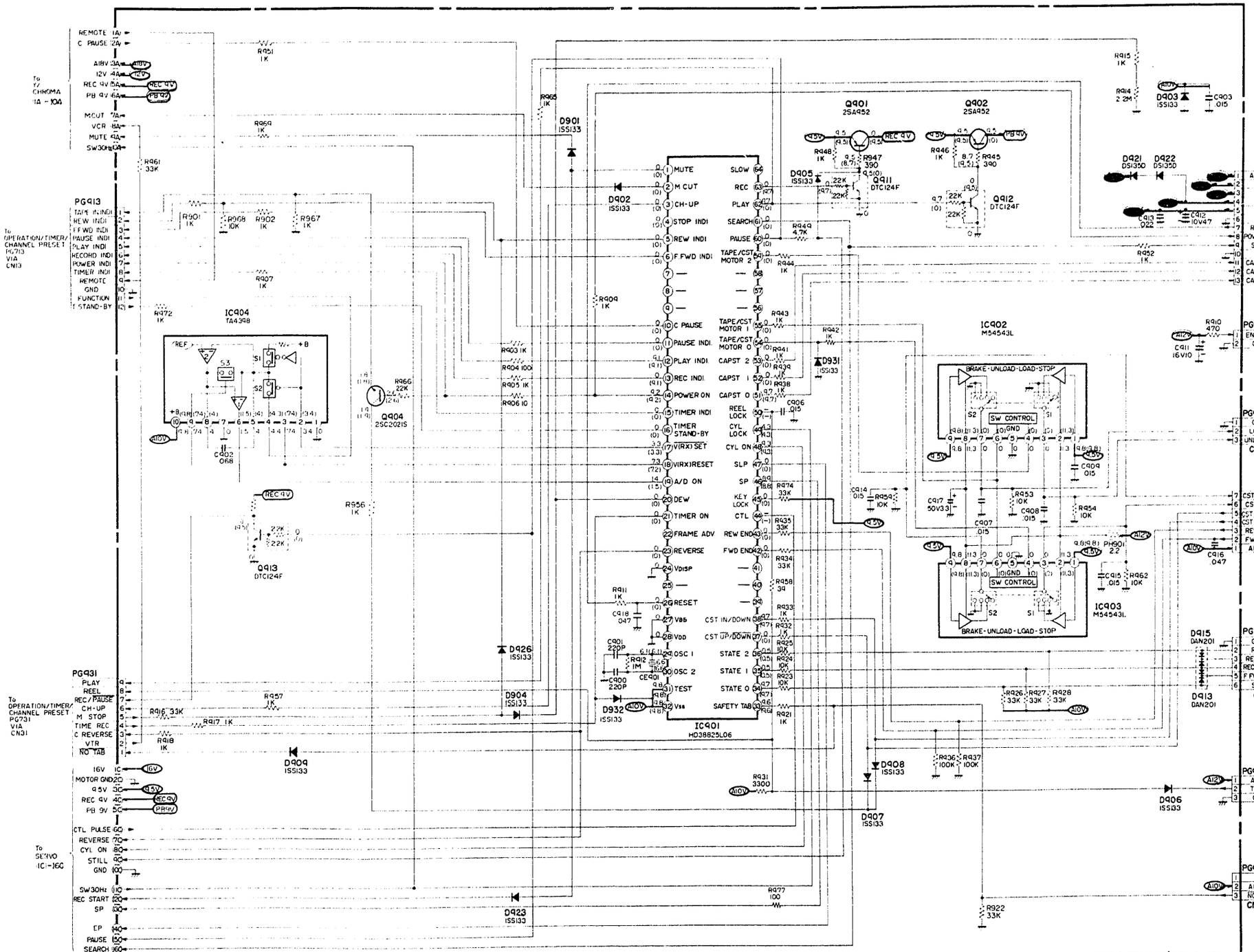
SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



PG4

7	CST UNLOAD
6	CST LOAD
5	CST UP/DOWN
4	CST IN/DOWN
3	REW END
2	FWD END
1	10V

To MAIN (SYSTEM CONTROL) PG922 VIA CN22


MAIN (SYSTEM CONTROL SECTION) P.C.B
IC901 HD38825L06
IC902 M54543L
IC903 M54543L
IC904 TA4398
Q901 2SA952
Q902 2SA952
Q903 2SC2021S
Q911 DTC124F
Q912 DTC124F
Q913 DTC124F
D901 ISS133
D902 ISS133
D903 ISS133
D904 ISS133
D905 ISS133
D906 ISS133
D907 ISS133
D908 ISS133
D909 ISS133
D911 ISS133
D921 DSI350
D922 DSI350
D923 ISS133
D926 ISS133
D931 ISS133
D932 ISS133
PG913
PG931
PG912
PG909
PG924
PG902
PG907
PG906
PG904
CN9
CN2
CN4
REMOTE 1A
C PAUSE 2A
A18V 3A
12V 4A
REC 9V 5A
PB 9V 6A
MCUT 7A
VCR 8A
MUTE 9A
SW30Hz 10A
TAPE IN INDI
REW INDI
F.FWD INDI
PAUSE INDI
PLAY INDI
RECORD INDI
POWER INDI
TIMER INDI
REMOTE
GND
FUNCTION
STAND-BY
MUTE
M CUT
CH-UP
STOP INDI
REW INDI
F.FWD INDI
C PAUSE
PAUSE INDI
PLAY INDI
REC INDI
POWER ON
TIMER INDI
TIMER STAND-BY
V(RX) SET
V(RX) RESET
A/D ON
DEW
TIMER ON
FRAME ADV
REVERSE
VDISP
RESET
VBB
VDD
OSC 1
OSC 2
TEST
Vss
SLOW
REC
PLAY
SEARCH
PAUSE
TAPE/CST MOTOR 2
TAPE/CST MOTOR 1
TAPE/CST MOTOR 0
CAPST 2
CAPST 1
CAPST 0
REEL LOCK
CYL LOCK
CYL ON
SLP
SP
KEY LOCK
CTL
REW END
FWD END
CST IN/DOWN
CST UP/DOWN
STATE 2
STATE 1
STATE 0
SAFETY TAB
BRAKE-UNLOAD-LOAD-STOP
SW CONTROL
GND
LOADING
UNLOADING
CST UNLOAD
CST LOAD
REW END
FWD END
A16V
A12V
T REEL
END LED
To OPERATION/TIMER/CHANNEL PRESET PG713 VIA CN13
To CHROMA 1A ~ 10A
To OPERATION/TIMER/CHANNEL PRESET PG731 VIA CN31
To SERVO IC1-16C
※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50
TUNER PACK	53
RF CONVERTER	54
POWER SUPPLY/REGULATOR	55
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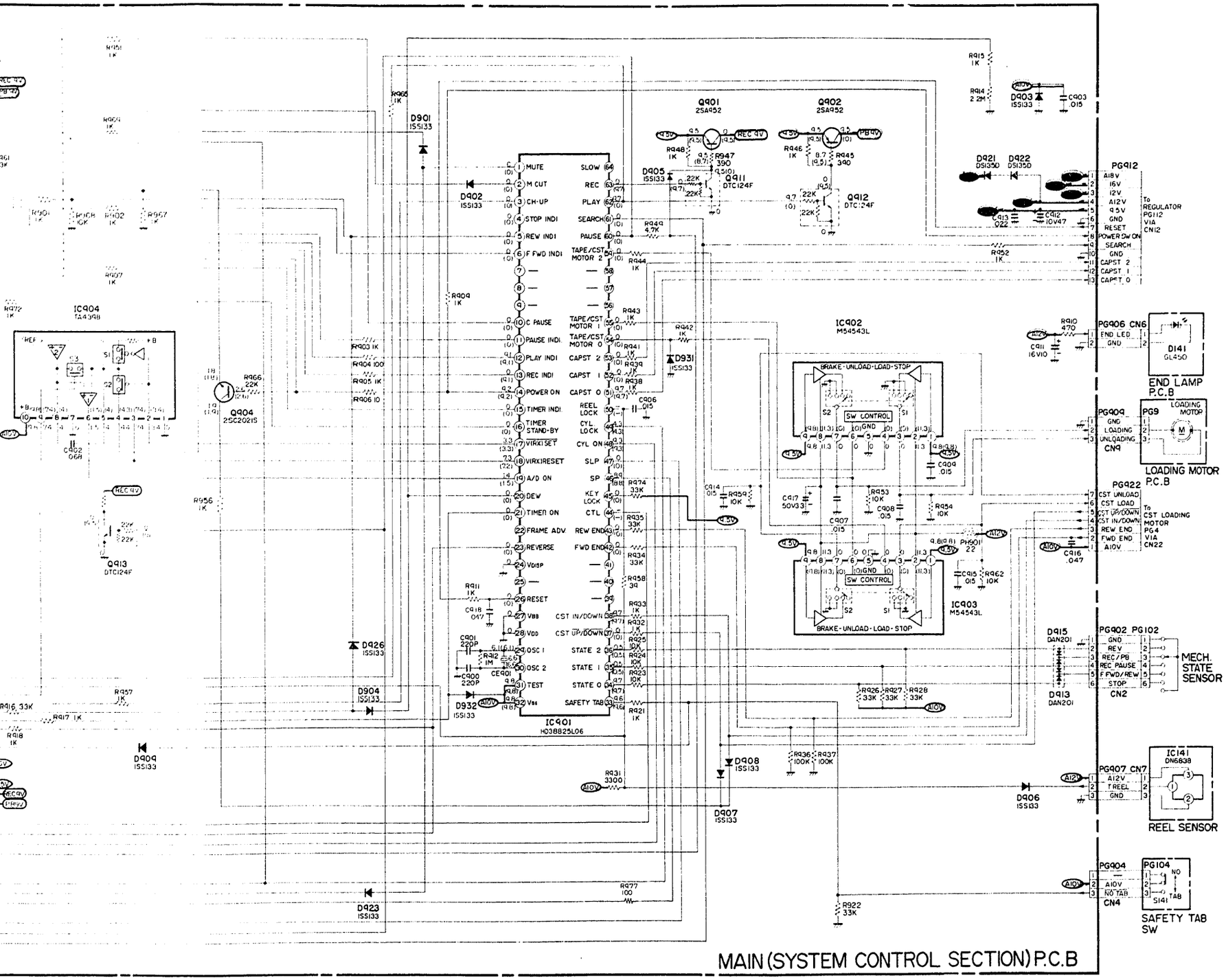
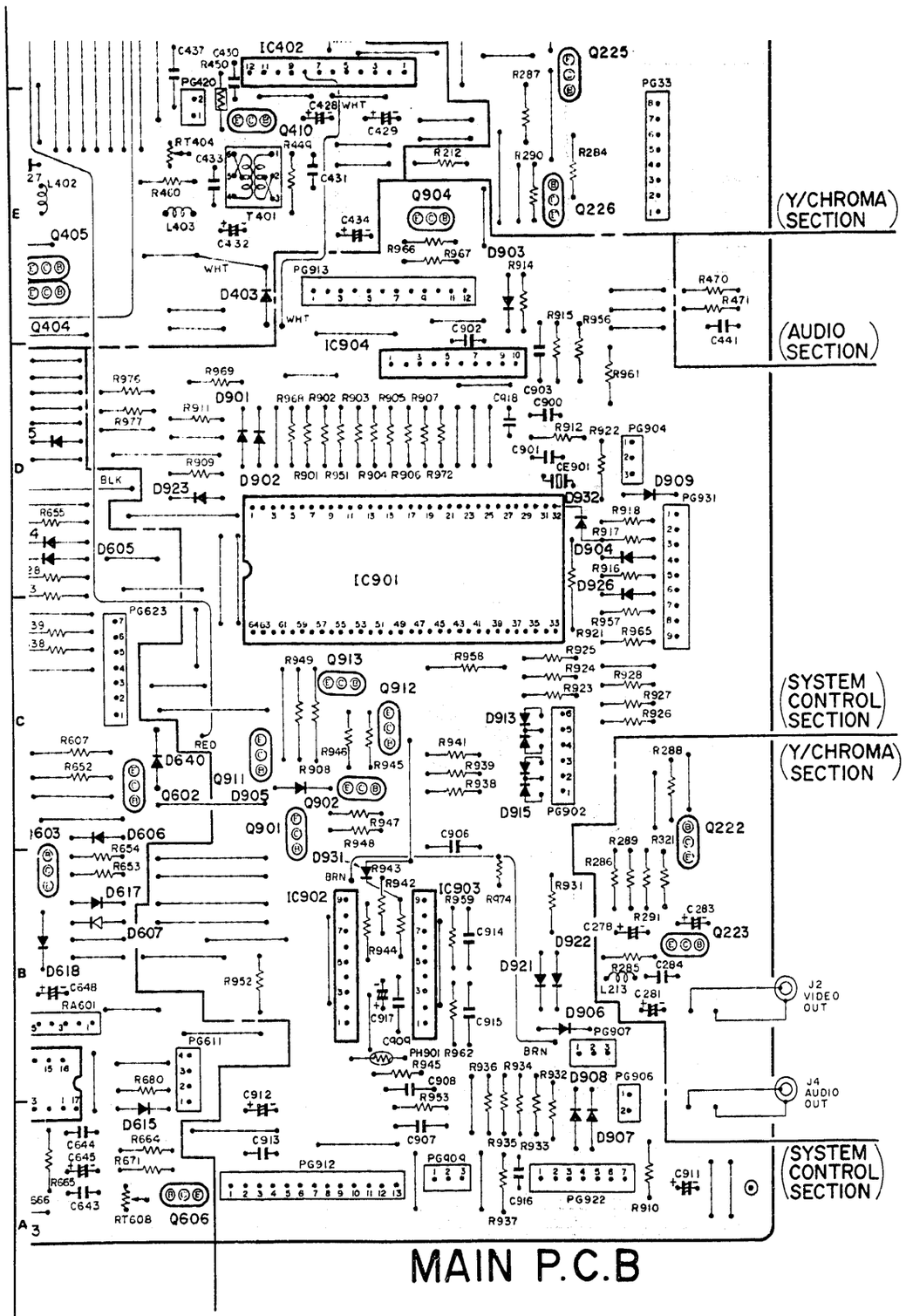
CASSETTE LOADING MOTOR	73
SYSTEM CONTROL	74
SERVO	80
CYLINDER MOTOR	86
I.R RECEIVER	88
REMOTE CONTROL (RX)	89
REMOTE CONTROL (TX)	91

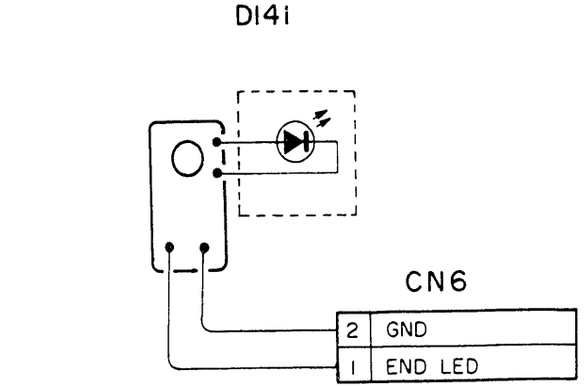


MAIN (SYSTEM CONTROL SECTION) P.C.B

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

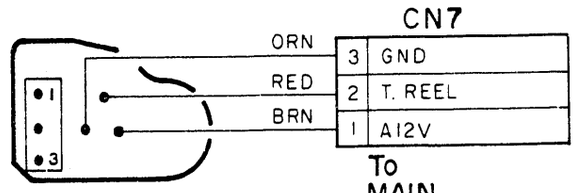


SYSTEM CONTROL CIRCUMFERENCE CIRCUIT BOARD



END LAMP P.C.B

To MAIN (SYSTEM CONTROL) PG906



REEL SENSOR P.C.B

To MAIN (SYSTEM CONTROL) PG907

IC 901

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	—	—	—	0(0)	0(0)	9.1(9.1)	0(9.1)	9.2(9.2)	0(0)	0(0)	3.3(3.3)	7.3(7.2)	1.4(1.5)	0(0)	0(0)
64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44
—	0(9.7)	9.7(0)	0(0)	0(0)	0(0)	—	—	—	0(0)	0(0)	0(0)	0(0)	9.7(9.7)	-(-)	4.3(4.3)	9.3(9.3)	0(0)	8.9(8.8)	0(0)	-(-)

IC 902

9	9.8(9.8)
8	11.3(11.3)
7	0 (0)
6	0 (0)
5	0
4	0 (0)
3	0 (0)
2	11.3(11.3)
1	9.8(9.8)

IC 903

9	9.8(9.8)
8	11.3(11.3)
7	0 (0)
6	0 (0)
5	0
4	0 (0)
3	0 (0)
2	11.3(11.3)
1	9.8(9.8)

IC 90

1	2	3	4	5	6
0	3.4(3.4)	7.4(7.4)	4.4(4.3)	4(4)	1.5(1

Q901

B	9.5(8.7)
C	0(9.5)
E	9.5(9.5)

Q902

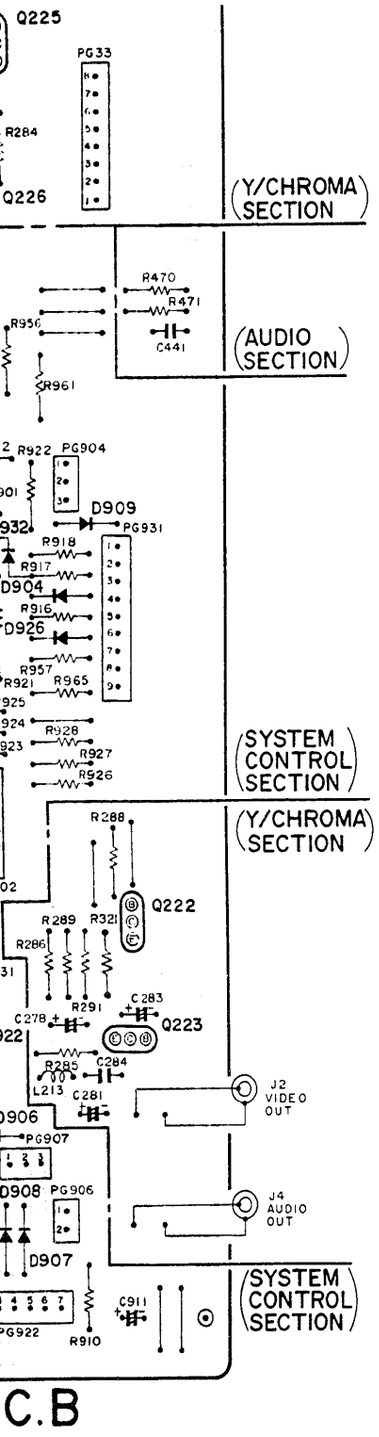
B	8.7(9.5)
C	9.5(0)
E	9.5(9.5)

Q904

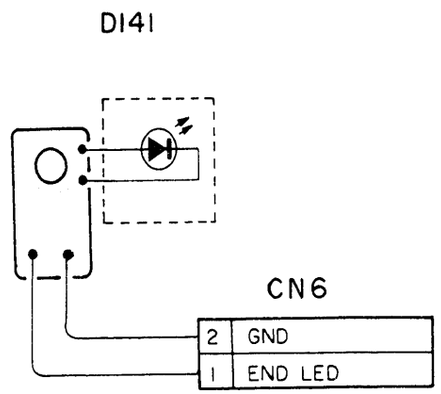
B	2.6(2.6)
C	1.9(1.9)
E	1.8(1.8)

※ VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN P

SYSTEM CONTROL CIRCUMFERENCE CIRCUIT BOARD

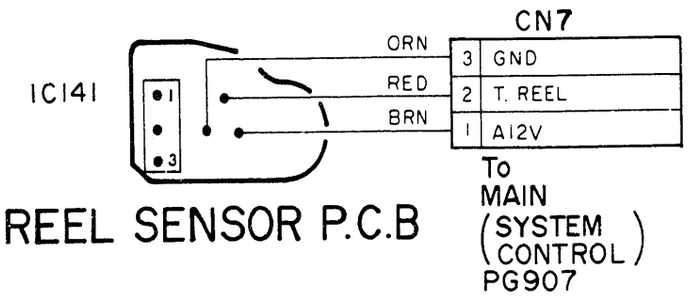


C.B



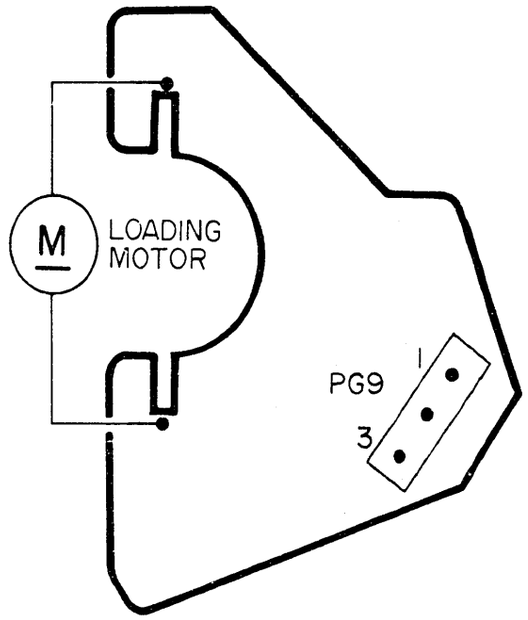
END LAMP P.C.B

To MAIN (SYSTEM CONTROL) PG906



REEL SENSOR P.C.B

To MAIN (SYSTEM CONTROL) PG907



LOADING MOTOR P.C.B

PG 9

1	GND
2	LOADING
3	UNLOADING

To MAIN (SYSTEM CONTROL) PG909 VIA CN9

IC 901

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	—	—	—	0(0)	0(0)	9.1(9.1)	0(9.1)	9.2(9.2)	0(0)	0(0)	3.3(3.3)	7.3(7.2)	1.4(1.5)	0(0)	0(0)	—	0(0)	0	—	0(0)	0	0	6.1(6.1)	6.6(6.6)	9.8(9.8)	9.8(9.8)
64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
—	0(9.7)	9.7(0)	0(0)	0(0)	0(0)	—	—	—	0(0)	0(0)	0(0)	0(0)	9.7(9.7)	– (–)	4.3(4.3)	9.3(9.3)	0(0)	8.9(8.8)	0(0)	– (–)	0(0)	0(0)	—	—	—	9.7(9.7)	0(0)	0.5(0.5)	0.5(0.5)	9.7(9.7)	9.6(9.6)

IC 902

9	9.8(9.8)
8	11.3(11.3)
7	0(0)
6	0(0)
5	0
4	0(0)
3	0(0)
2	11.3(11.3)
1	9.8(9.8)

IC 903

9	9.8(9.8)
8	11.3(11.3)
7	0(0)
6	0(0)
5	0
4	0(0)
3	0(0)
2	11.3(11.3)
1	9.8(9.8)

IC 904

1	2	3	4	5	6	7	8	9	10
0	3.4(3.4)	7.4(7.4)	4.4(4.3)	4(4)	1.5(1.5)	0	4(4)	7.4(7.4)	9.8(9.8)

Q901

B	9.5(8.7)
C	0(9.5)
E	9.5(9.5)

Q902

B	8.7(9.5)
C	9.5(0)
E	9.5(9.5)

Q904

B	2.6(2.6)
C	1.9(1.9)
E	1.8(1.8)

Q911

B	0(9.7)
C	9.5(0)
E	0

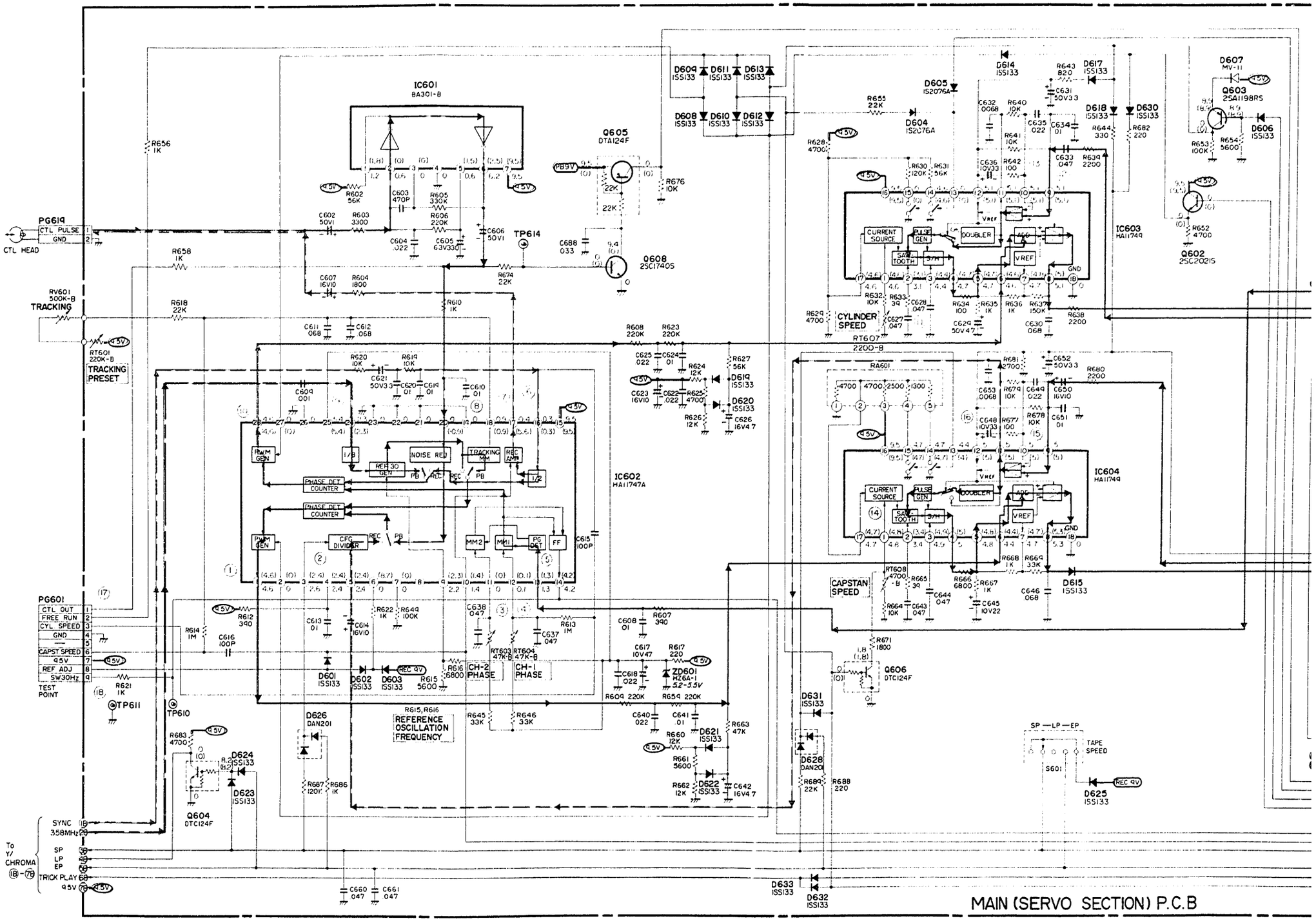
Q912

B	9.7(0)
C	0(9.5)
E	0

Q913

B	0(0)
C	0(9.5)
E	0

※ VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.



※ VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50
TUNER PACK	53
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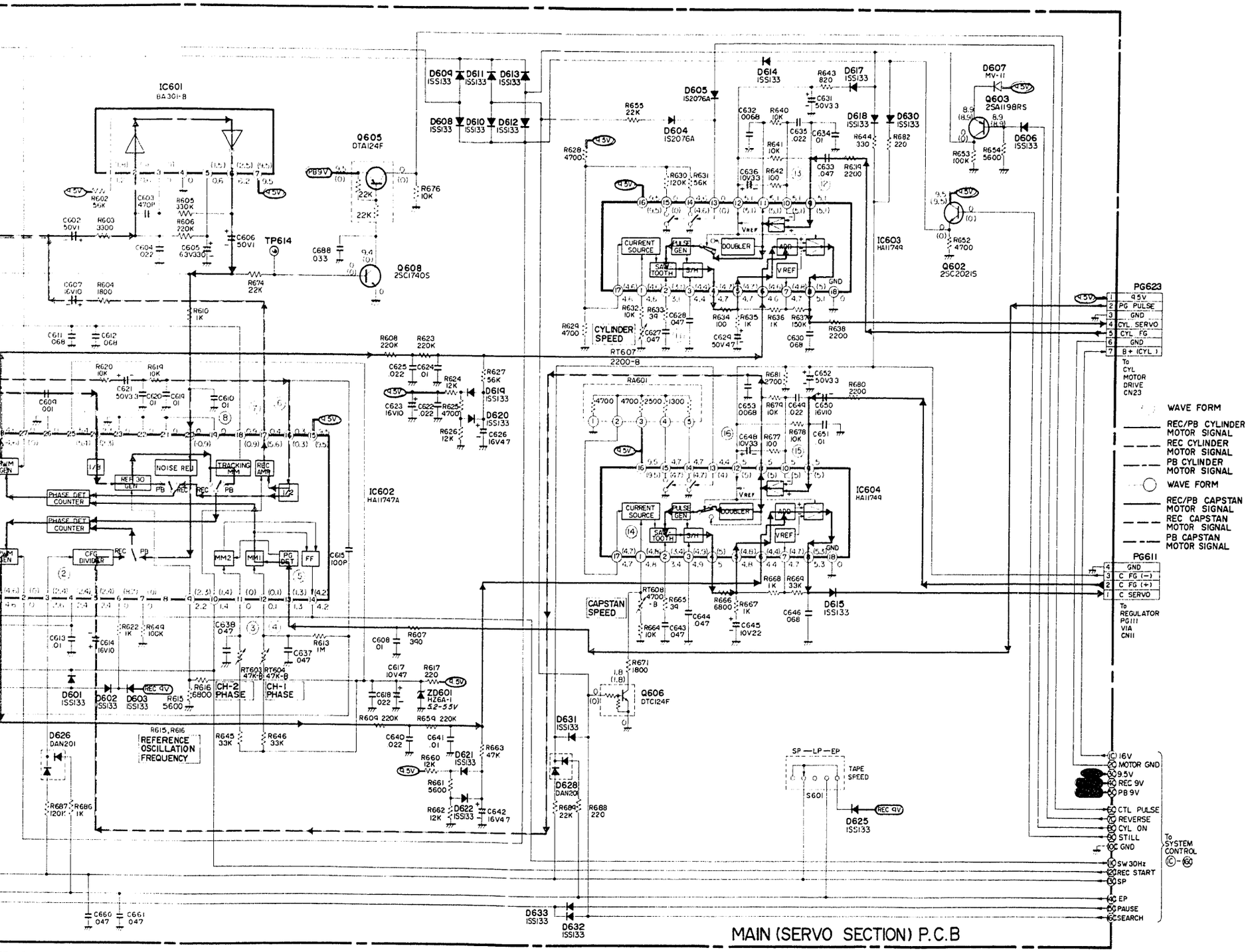
SYSTEM CONTROL	74
SERVO	80
CYLINDER MOTOR	86
I.R RECEIVER	88
REMOTE CONTROL (RX)	89
REMOTE CONTROL (TX)	91



MAIN (SERVO SECTION) P.C.B

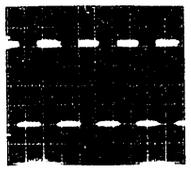
RE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

SERVO WAVEFORMS

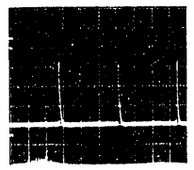
INPUT: Colorbar signal (2Vp-p)
Playback: Alignment tape

[IC602]

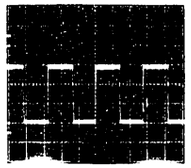
① PIN1 PB
2V/1ms. div.



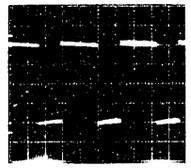
⑥ PIN16 REC
0.5V/5ms. div.



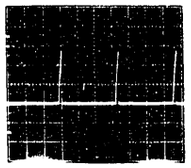
② PIN5 PB
0.5V/0.5ms. div.



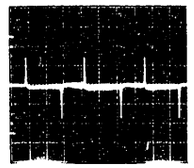
⑦ PIN17 REC
2V/10ms. div.



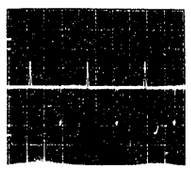
③ PIN12 REC
1V/10ms. div.



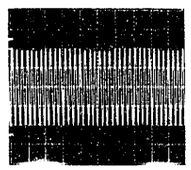
⑧ PIN20 PB
2V/10ms. div.



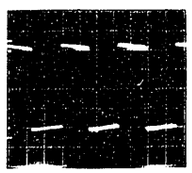
④ PIN13 REC
1V/10ms. div.



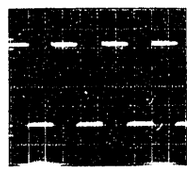
⑨ PIN24 REC
0.1V/1μs. div.



⑤ PIN14 REC
2V/10ms. div.

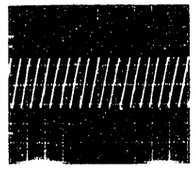


⑩ PIN28 REC
2V/0.2V. div.

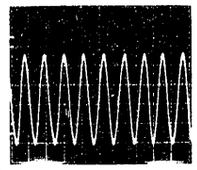


[IC603]

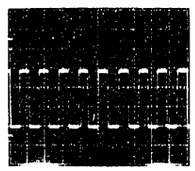
⑪ PIN2 REC/PB
2V/1ms. div.



⑫ PIN9 REC/PB
0.1V/0.5ms. div.

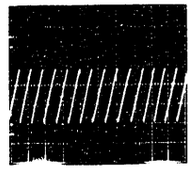


⑬ PIN11 REC/PB
0.5V/0.5ms. div.

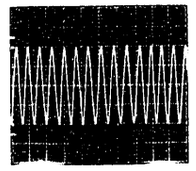


[IC604]

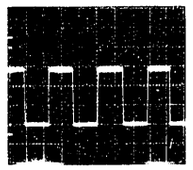
⑭ PIN2 REC/PB
2V/1ms. div.



⑮ PIN9 REC/PB
0.2V/2ms. div.

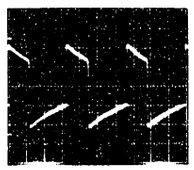


⑯ PIN11 REC/PB
0.5V/0.5rns. div.

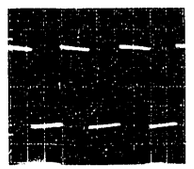


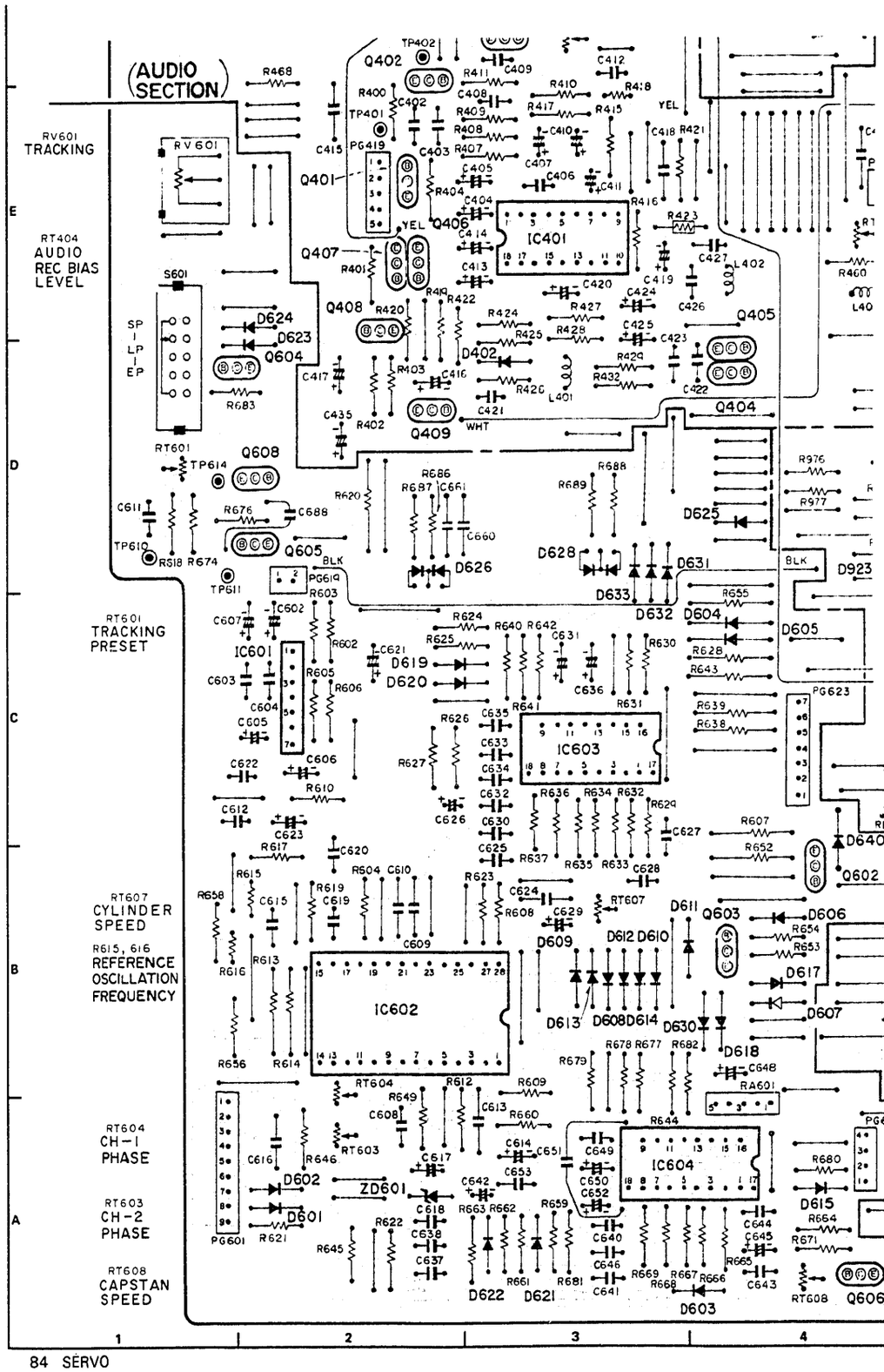
[TEST POINT]

⑰ TP601-1 REC
2V/10ms. div.



⑱ TP601-9 REC/PB
2V/10ms. div.





15	16	17
9.5(9.5)	0.3(0.3)	0.4(5.6)
14	13	12
4.2(4.2)	1.3(1.3)	0.1(0.1)

IC601

1	1.2(1.8)
2	0.6(0)
3	0(0)
4	0
5	0.6(1.5)
6	6.2(2.5)
7	9.5(9.5)

Q602

B	0 (0)
C	9.5(9.5)
E	0 (0)

[IC604]

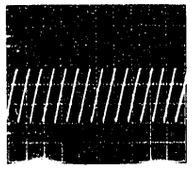
PB
v.

PB
. div.

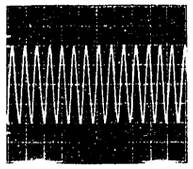
C/PB
s. div.

REC
div.

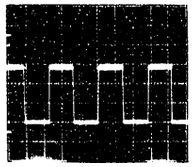
(14) PIN2 REC/PB
2V/1ms. div.



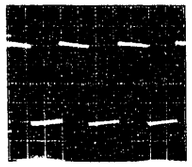
(15) PIN9 REC/PB
0.2V/2ms. div.

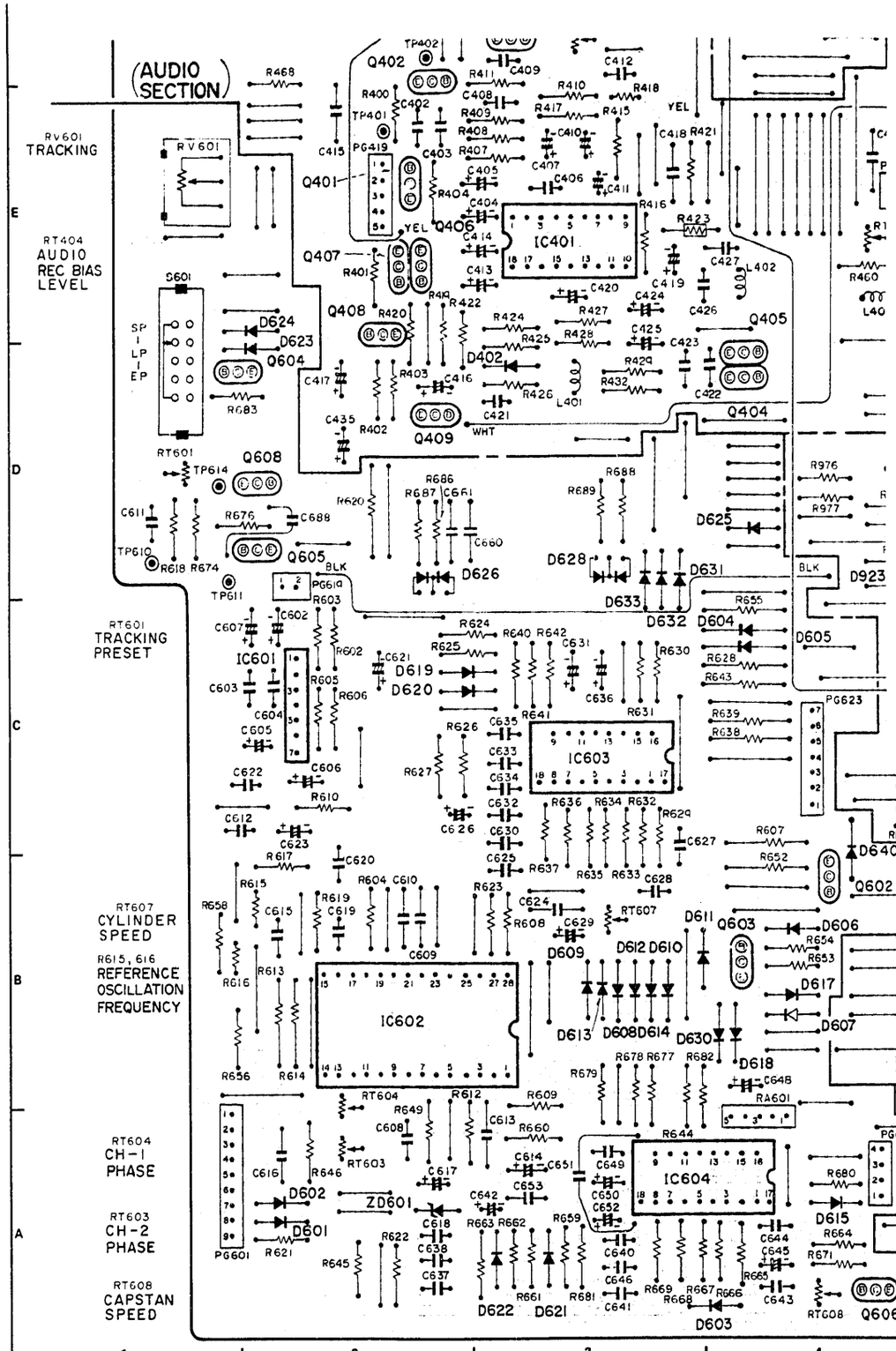


(16) PIN11 REC/PB
0.5V/0.5ms. div.



(18) TP601-9 REC/PB
2V/10ms. div.





IC602

15	16	17	18	19	20	21	22	23	24	25	26	27	28
9.5(9.5)	0.3(0.3)	0.4(5.6)	0.9(0.9)	0	0(-0.9)	0	0	0	2.3(2.3)	5.4(5.4)	0	0(0)	4.6(4.6)
14	13	12	11	10	9	8	7	6	5	4	3	2	1
4.2(4.2)	1.3(1.3)	0.1(0.1)	0(0)	1.4(1.4)	2.2(2.3)	——	0(0)	0(8.7)	2.4(2.4)	2.4(2.4)	2.6(2.4)	0(0)	4.6(4.6)

IC601

1	1.2(1.8)
2	0.6(0)
3	0(0)
4	0
5	0.6(1.5)
6	6.2(2.5)
7	9.5(9.5)

IC603

	9	10	11	12	13	14	15	16	
	5.1(5.1)	5.1(5.1)	5.1(5.1)	5.1(5.1)	0(0)	4.6(4.6)	0(0)	9.5(9.5)	
18	8	7	6	5	4	3	2	1	17
0	5.1(5)	4.7(4.8)	4.6(4.6)	4.7(4.7)	4.7(4.7)	4.4(4.4)	3.1(3.1)	4.6(4.6)	4.6(4.6)

IC604

	9	10	11	12	13	14	15	16	
	5(5)	5(5)	5(5)	5(5)	4.4(4)	4.7(4.7)	4.7(4.7)	9.5(9.5)	
18	8	7	6	5	4	3	2	1	17
0	5.3(5.3)	4.7(4.7)	4.4(4.4)	4.8(4.8)	5(5)	4.9(4.9)	3.4(3.4)	4.8(4.8)	4.7(4.7)

Q602

B	0(0)
C	9.5(9.5)
E	0(0)

Q603

B	8.9(8.9)
C	0(0)
E	8.9(8.9)

Q604

B	8.2(8.2)
C	0(0)
E	0

Q605

B	9.4(0)
C	0(0)
E	9.5(0)

Q606

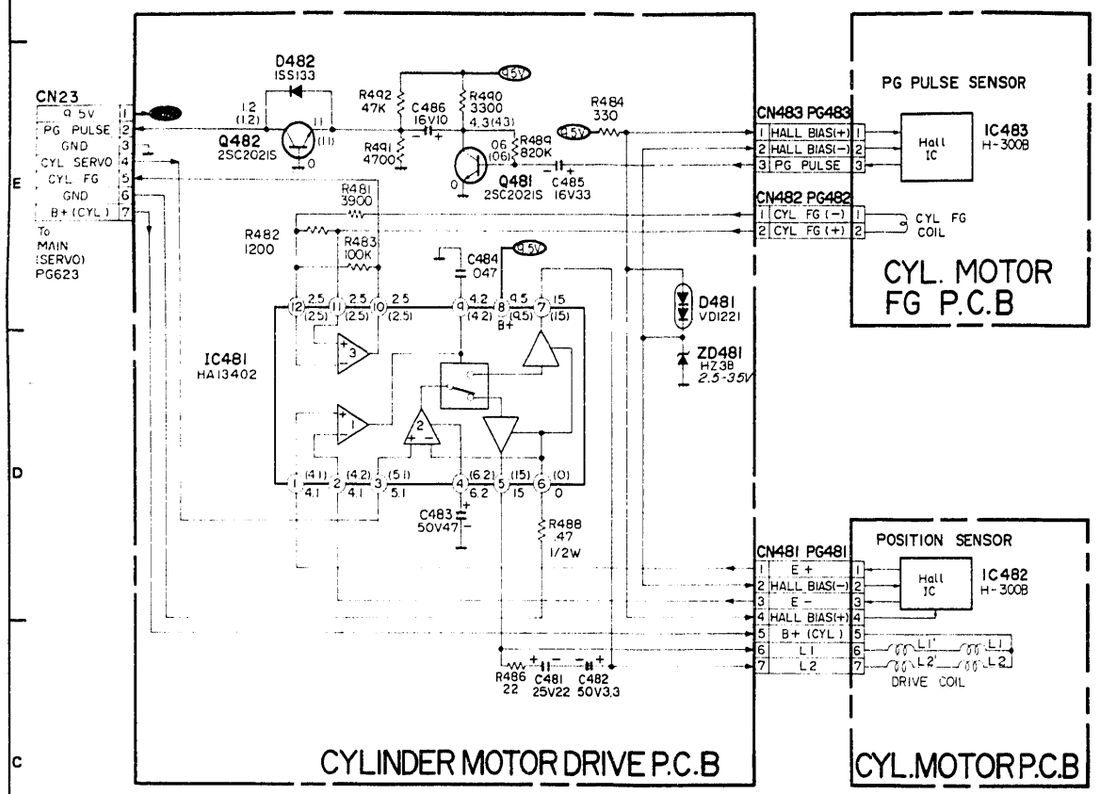
B	0(0)
C	1.8(1.8)
E	0

Q608

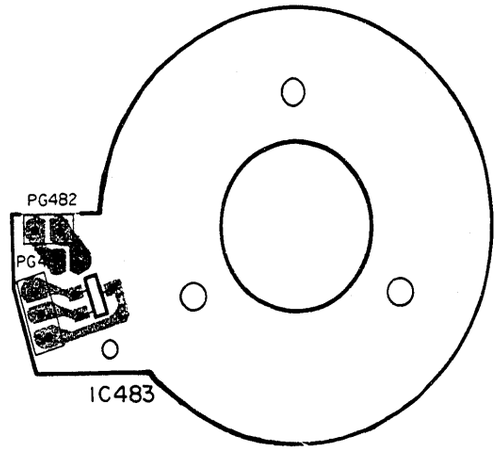
B	0(0)
C	9.4(0)
E	0

※ VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

CYLINDER MOTOR



SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



CYLINDER MOTOR FG P.C.B

PG482

1	CYL. FG(-)
2	CYL. FG(+)

To CYLINDER MOTOR DRIVE CN482

PG483

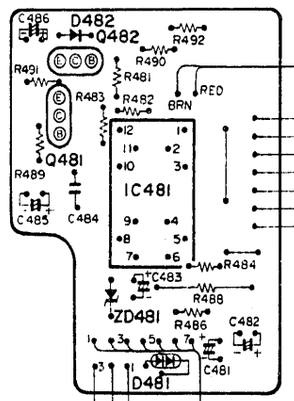
1	HALL BIAS(+)
2	HALL BIAS(-)
3	PG PULSE

To CYLINDER MOTOR DRIVE CN483

Q481	
B	0.6(0.6)
C	4.3(4.3)
E	0 (0)

Q482	
B	0 (0)
C	1.2 (1.2)
E	1.1(1.1)

IC481			
12	2.5 (2.5)	1	4.1(4.1)
11	2.5(2.5)	2	4.2(4.2)
10	2.5(2.5)	3	5.1(5.1)
9	4.2(4.2)	4	6.2(6.2)
8	9.5(9.5)	5	15 (15)
7	15 (15)	6	0 (0)



CYLINDER MOTOR DRIVE P.C.B

CN23

BRN	1	9.5V
RED	2	PG PULSE
ORN	3	GND
YEL	4	CYL. SERVO
PNK	5	CYL. FG(+)
BLU	6	MOTOR GND
VLT	7	B+(CYL)

To MAIN (SERVO) PG623

CN481

BRN	1	E+
RED	2	HALL BIAS(-)
ORN	3	E-
YEL	4	HALL BIAS(+)
PNK	5	B+(CYL)
BLU	6	L1
VLT	7	L2

To CYL. MOTOR PG481

CN482

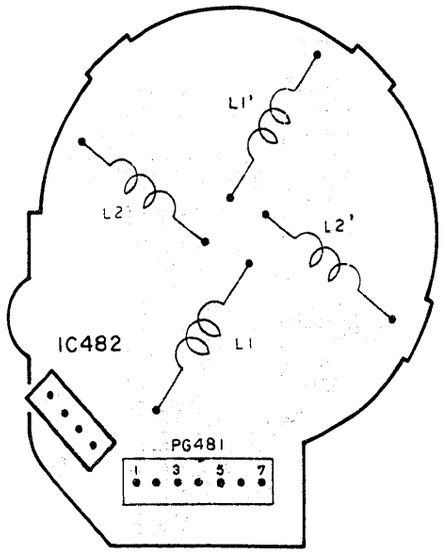
BRN	1	CYL. FG(-)
RED	2	CYL. FG(+)

To CYL. MOTOR FG PG482

CN483

BRN	1	HALL BIAS(+)
RED	2	HALL BIAS(-)
ORN	3	PG PULSE

To CYL. MOTOR FG PG483



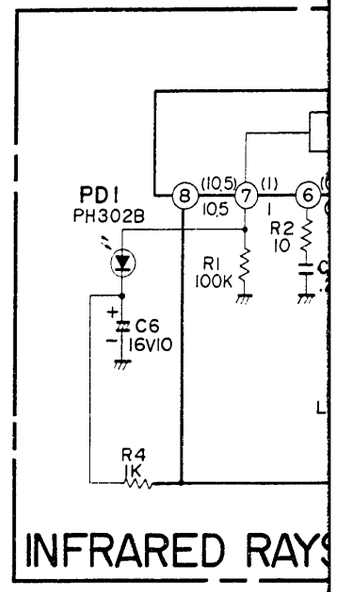
CYLINDER MOTOR P.C.B

PG481

1	E+
2	HALL BIAS(-)
3	E-
4	HALL BIAS(+)
5	B+(CYL.)
6	L1
7	L2

To CYLINDER MOTOR DRIVE CN481

I.R RECEIVER



IC1

8	10.5(10.5)
7	1 (1)
6	0.4(0.4)
5	0
4	9.1(9.1)
3	10.5(10.5)
2	1.4(1.4)
1	3.8(3.8)

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
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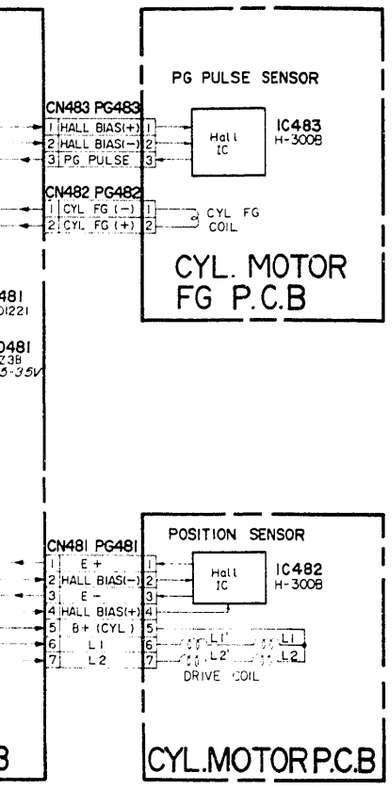
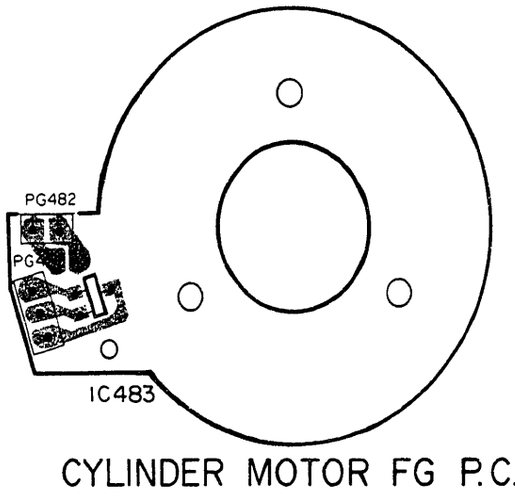
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91





CYLINDER MOTOR FG P.C.B

PG482

1	CYL. FG (-)
2	CYL. FG (+)

To CYLINDER MOTOR DRIVE CN482

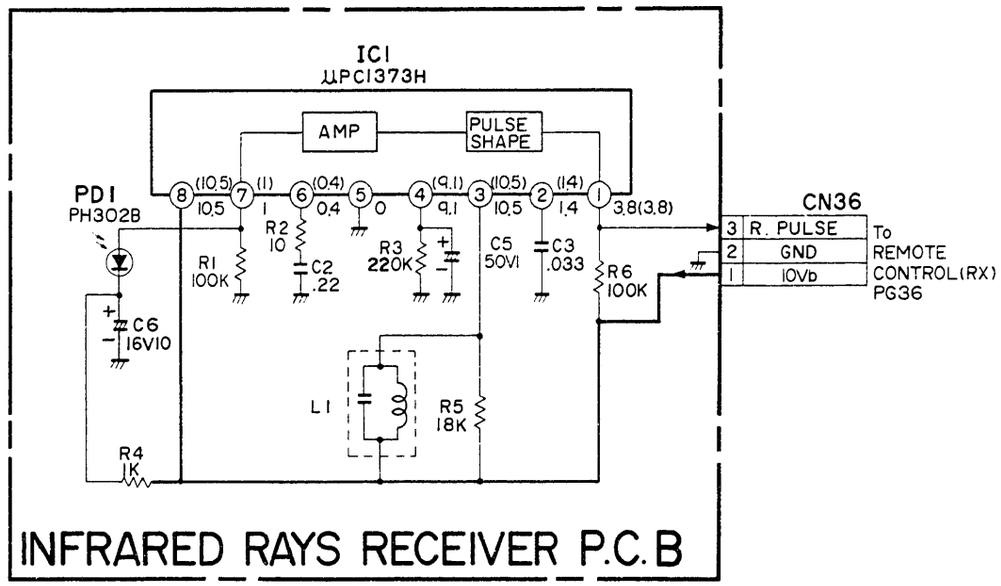
PG483

1	HALL BIAS(+)
2	HALL BIAS(-)
3	PG PULSE

To CYLINDER MOTOR DRIVE CN483

I.R RECEIVER

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



CN23

1	9.5V
2	PG PULSE
3	GND
4	CYL. SERVO
5	CYL FG(+)
6	MOTOR GND
7	B+(CYL)

To MAIN (SERVO) PG623

CN481

1	E+
2	HALL BIAS(-)
3	E-
4	HALL BIAS(+)
5	B+ (CYL)
6	L1
7	L2

To CYL. MOTOR PG481

CN482

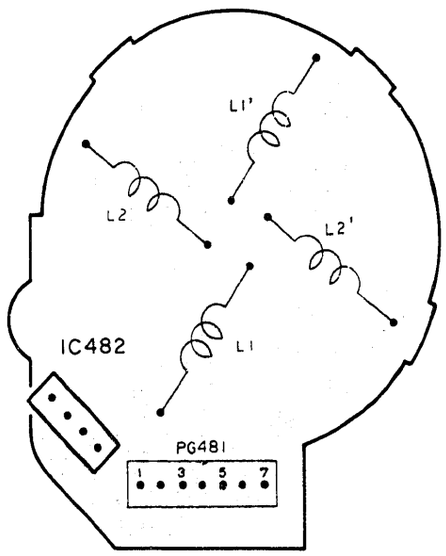
1	CYL. FG(-)
2	CYL. FG(+)

To CYL. MOTOR FG PG482

CN483

1	HALL BIAS(+)
2	HALL BIAS(-)
3	PG PULSE

To CYL. MOTOR FG PG483



CYLINDER MOTOR P.C.B

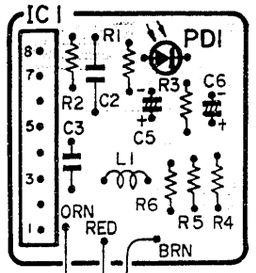
PG481

1	E+
2	HALL BIAS(-)
3	E-
4	HALL BIAS(+)
5	B+(CYL.)
6	L1
7	L2

To CYLINDER MOTOR DRIVE CN481

IC1

8	10.5(10.5)
7	1(1)
6	0.4(0.4)
5	0
4	9.1(9.1)
3	10.5(10.5)
2	1.4(1.4)
1	3.8(3.8)



I.R RECEIVER P.C.B

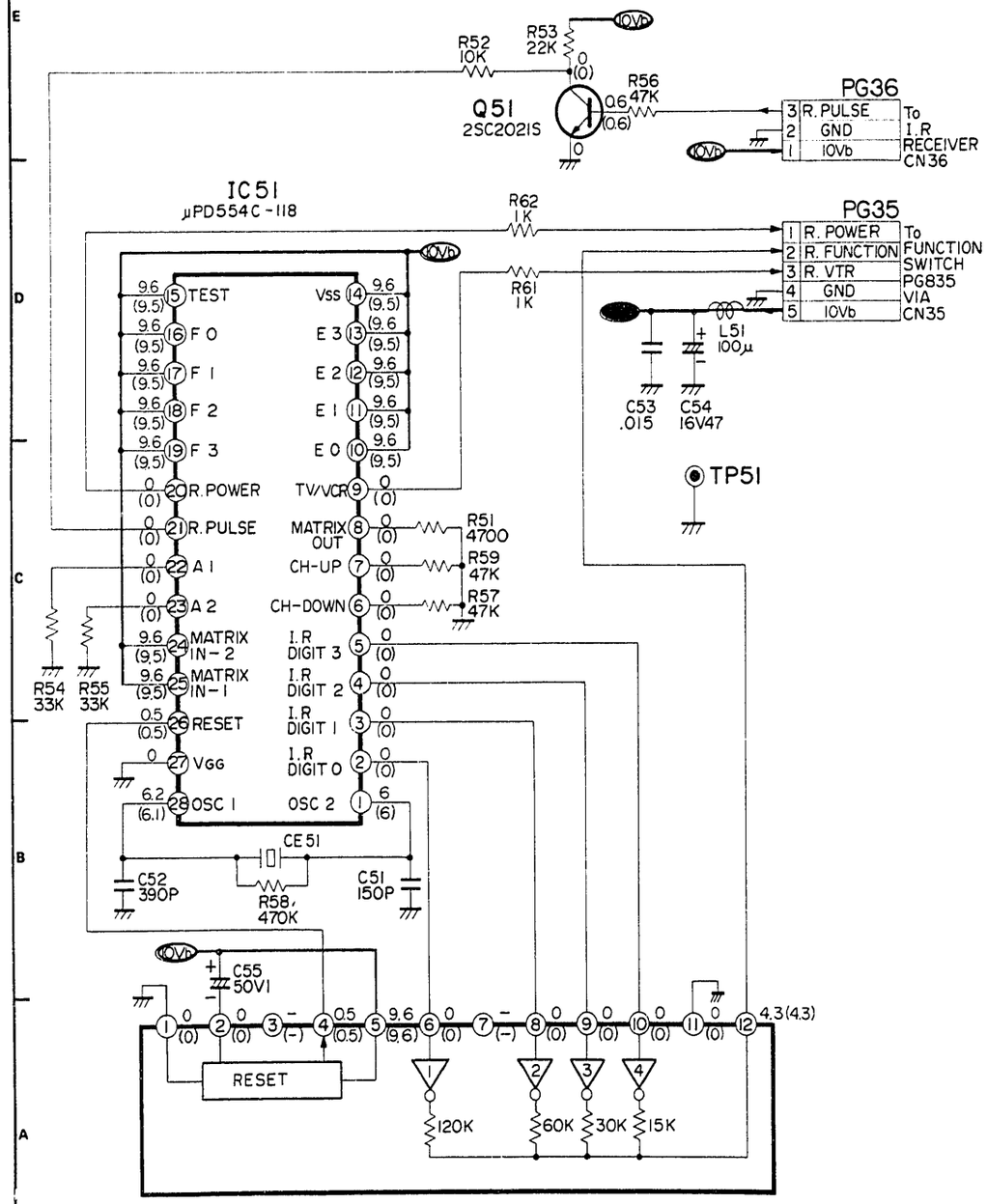
CN36

ORN	3	R. PULSE
RED	2	GND
BRN	1	10Vb

To REMOTE CONTROL (RX) PG36

REMOTE CONTROL (RX)

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
TUNER/IF	50	CASSETTE LOADING MOTOR	73
TUNER PACK	53	SYSTEM CONTROL	74
RF CONVERTER	54	SERVO	80
POWER SUPPLY/REGULATOR	55	CYLINDER MOTOR	86
OPERATION SWITCH/TIMER/ CHANNEL PRESET	58	I.R RECEIVER	88
Y/CHROMA	64	REMOTE CONTROL (RX)	89
AUDIO	69	REMOTE CONTROL (TX)	91



IC 51

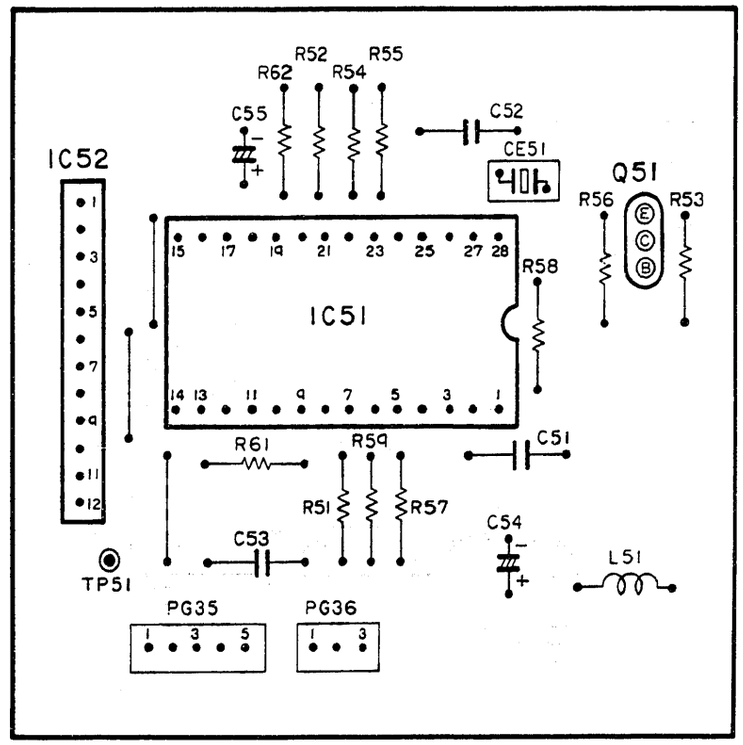
15	16	17	18	19	20	21	22	23	24	25	26	27	28
9.6(9.5)	9.6(9.5)	9.6(9.5)	9.6(9.5)	9.6(9.5)	0(0)	0(0)	0(0)	0(0)	9.6(9.5)	9.6(9.5)	0.5(0.5)	0	6.2(6.1)
14	13	12	11	10	9	8	7	6	5	4	3	2	1
9.6(9.5)	9.6(9.5)	9.6(9.5)	9.6(9.5)	9.6(9.5)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	6(6)

IC52

1	0(0)
2	0(0)
3	–(–)
4	0.5(0.5)
5	9.6(9.6)
6	0(0)
7	–(–)
8	0(0)
9	0(0)
10	0(0)
11	0(0)
12	4.3(4.3)

Q51

B	0.6(0.6)
C	0(0)
E	0



REMOTE CONTROL (RX) P.C.B

PG35

1	R.POWER
2	R.FUNCTION
3	R.VCR
4	GND
5	10Vb

To FUNCTION SWITCH PG835 VIA CN35

PG36

3	R.PULSE
2	GND
1	10Vb

To I.R. RECEIVER CN36

REMOTE CONTROL (TX)

SCHEMATIC DIAGRAM	PAGE	SCHEMATIC DIAGRAM	PAGE
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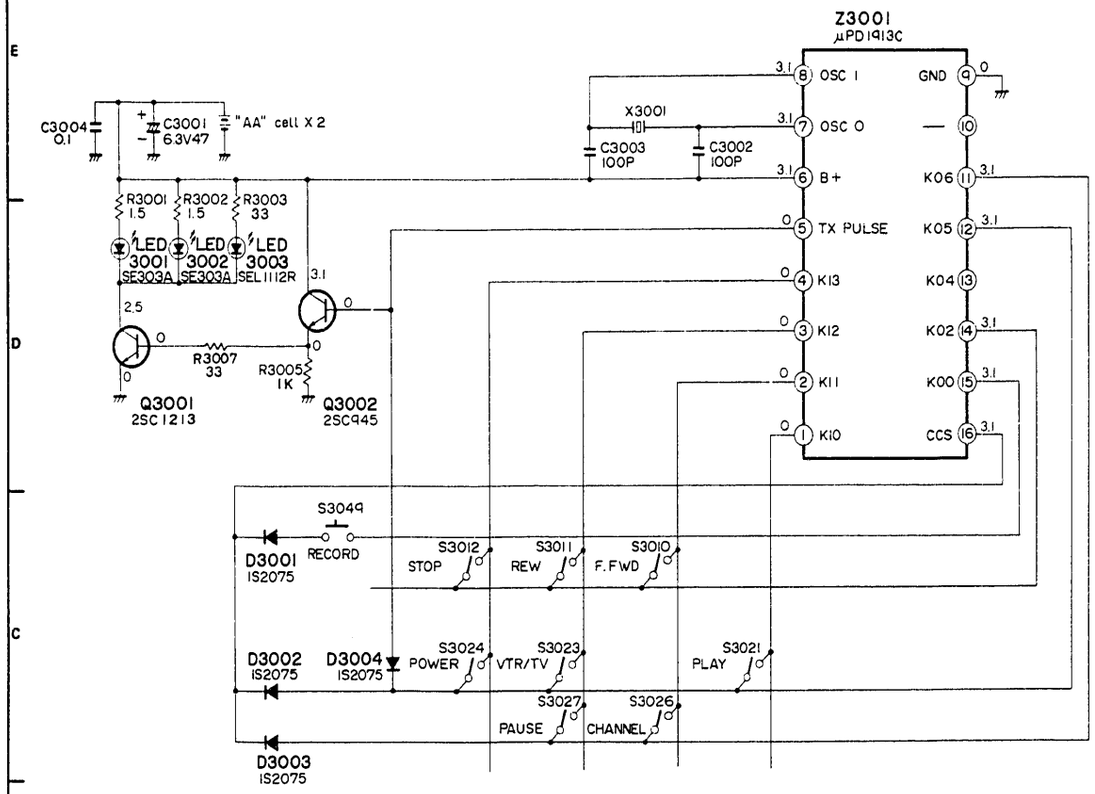
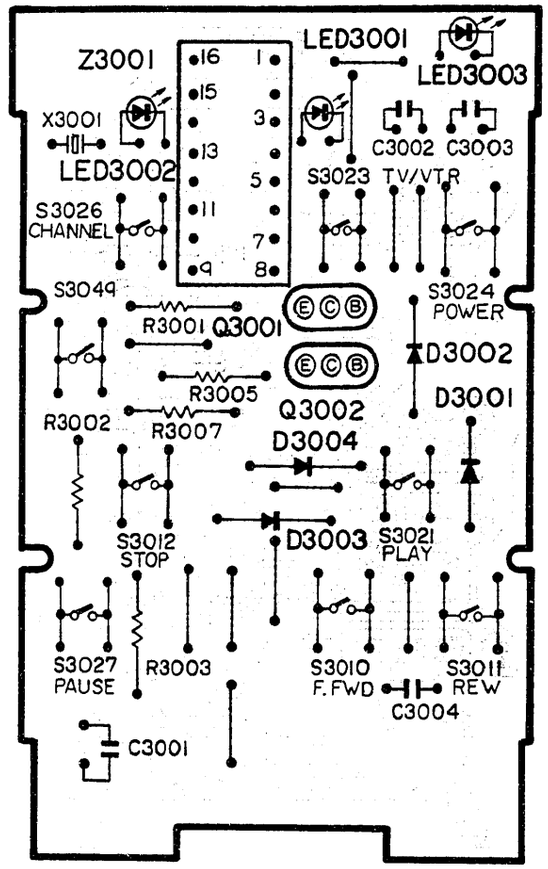




REMOTE CONTROL(TX)P.C.B

Z3001

16	3.1	1	0
15	3.1	2	0
14	3.1	3	0
13	—	4	0
12	3.1	5	0
11	3.1	6	3.1
10	—	7	3.1
9	0	8	3.1

Q3001

B	0
C	2.5
E	0

Q3002

B	0
C	3.1
E	0

REPLACEMENT PARTS LIST

ELECTRICAL PARTS

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C102-105	0209022	CERAMIC DISC (RESISTOR SHAPE) 0.002 2%F+-
C106	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30
C415	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30
C437	0209006	CERAMIC DISC (RESISTOR SHAPE) 680PF +-10%
C485	0256157	ELECTROLYTIC 33UF 16V
C486	0256155	ELECTROLYTIC 10UF 16V
C5	0256151	ELECTROLYTIC 1.0UF 50V
C51	0209011	CERAMIC DISC (RESISTOR SHAPE) 150PF +-10%
C6	0256405	TANTALUM ELECTROLYTIC 10MF 16V
C609	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10
C610	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30
C613	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30
C616	0209141	CERAMIC CAPACITOR 100PF+-5%
C626	0256473	TANTALUM 4.7 16V1
C642	0256473	TANTALUM 4.7 16V1
C701	0209024	CERAMIC DISC (RESISTOR SHAPE) 4700P F+-30
C903	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
C906	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
C907-908	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
C909	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
C914-915	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
		RESISTORS
RA601	5378952	RESISTOR BLOCK
RA701	5378921	RESISTOR BLOCK
RT101	5007432	SEMI VARIABLE 1.0KOHM
RT201	5007433	SEMI VARIABLE 2.2KOHM
RT202	5007434	SEMI VARIABLE 4.7KOHM
RT401	5007437	SEMI VARIABLE 47KOHM
RT404	5007438	SEMI VARIABLE 100KOHM
RT601	5007719	SEMI VARIABLE 22CKOHM
RT603-604	5007437	SEMI VARIABLE 47KOHM
RT607	5007445	SEMI VARIABLE 2.2KOHM
RT608	5007446	SEMI VARIABLE RESISTOR 4.7KOHM
RV601	5005316	RESISTOR BLOCK
R101	0134706	COMPOSITION 3.3MOHM1/2W
R423	0170481	FUSE RESISTOR 220HM+-5% 1/4W
R450	0170472	FUSE RESISTOR 3.3OHM+-5% 1/4W
R488	0149705	METAL FILM RESISTOR 0.470HM 1/2W
		SEMI-CONDUCTORS
C52	0209005	CERAMIC DISC (RESISTOR SHAPE) 390PF +-10%
C53	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30 %
D002	5331592	DIODE 1SS133
D101	5331521	DIODE S4V61C
D102-103	5331671	DIODE DS135D-FA3
D104	5330132	DIODE 1S2076A
D127-128	5331671	DIODE DS135D-FA3
D201	5331592	DIODE 1SS133
D203	5331592	DIODE 1SS133
D204-206	5331051	DIODE 1K60R
D207-208	5331592	DIODE 1SS133
D211	5330131	DIODE 1S2076
D402-403	5331592	DIODE 1SS133
D481	5340205	VARISTOR VD1221
D482	5331592	DIODE 1SS133
D601-603	5331592	DIODE 1SS133
D604	5330131	DIODE 1S2076
D605	5330131	DIODE 1S2076
D606	5331592	DIODE 1SS133
D607	5340021	VARISTOR SILICON MV-11 10K
D608-614	5331592	DIODE 1SS133
D615	5331592	DIODE 1SS133
D617-625	5331592	DIODE 1SS133
D626	5331511	DIODE DAN201
D628	5331511	DIODE DAN201
D630-633	5331592	DIODE 1SS133
D701-744	5330132	DIODE 1S2076A
D745-751	5330132	DIODE 1S2076A
D752	5330131	DIODE 1S2076
D753	5330132	DIODE 1S2076A
D754-755	5330132	DIODE 1S2076A
D901-905	5331592	DIODE 1SS133
D906-909	5331592	DIODE 1SS133
D913	5331511	DIODE DAN201
D915	5331511	DIODE DAN201
D921-922	5331671	DIODE DS135D-FA3
D923	5331592	DIODE 1SS133
D926	5331592	DIODE 1SS133
IC1	5355261	IC MPC1373H
IC101	5369911	IC M54548L
IC141	5391032	HOLEIC DN6838A
IC201	5375961	IC HT4234
IC202	5375973	IC HT4235B
IC203	5374041	IC HT4233
IC204	5369391	IC MSL9378RS
IC401	5352631	IC BA5102
IC402	5377231	IC HT4401
IC481	5355451	IC HA13402
IC51	5369512	IC MPD554C-11A
IC52	5376231	IC TA4373

SYMBOL-NO	P-NO	DESCRIPTION
IC6C1	5350271	IC BA3018
IC602	5355492	IC HA11747A
IC603-604	5355501	IC HA11749
IC701	5351723	IC MPC1363C
IC702	5261001	DC-DC CONVERTOR
IC703	5361114	IC M58839-660P
IC704	5377331	IC MT4404
IC901	5361133	IC MD38825L06
IC902-903	5369171	IC M54543L
IC904	5377131	IC TA4398
LED701-702	5341251	LED SLM-54MT4
LED703-707	5380721	LED SLR-54UR4
LED708-709	5380721	LED SLR-54UR4
LED711-722	5330721	LED SLR-54UR4
PD1	5380492	PHOT, DIODE PH302
Q101-104	5323671	TRANSISTOR 2SD1510-2P
Q105	5322733	TRANSISTOR 2SA952-L
Q106-108	5321662	TRANSISTOR 2SC2021S
Q109	5323331	TRANSISTOR 2SB772-Q
Q110	5321662	TRANSISTOR 2SC2021S
Q201-208	5321663	TRANSISTOR 2SC2021RS
Q209	5320619	TRANSISTOR 2SC1213CD
Q211	5321663	TRANSISTOR 2SC2021RS
Q212-213	5321255	TRANSISTOR 2SA844CD
Q214	5321663	TRANSISTOR 2SC2021RS
Q215	5321255	TRANSISTOR 2SA844CD
Q216	5321663	TRANSISTOR 2SC2021RS
Q218-219	5321663	TRANSISTOR 2SC2021RS
Q221-222	5321663	TRANSISTOR 2SC2021RS
Q223	5320619	TRANSISTOR 2SC1213CD
Q225	5322732	TRANSISTOR 2SA952-L2
Q226-227	5321663	TRANSISTOR 2SC2021RS
Q228	5321255	TRANSISTOR 2SA844CD
Q401-405	5323561	TRANSISTOR DTC124F
Q406-407	5323031	TRANSISTOR 2SC1845EF
Q408	5323041	TRANSISTOR 2SA992FE
Q410	5321213	TRANSISTOR 2SD468C 190MHZ 0.9W
Q481-482	5321662	TRANSISTOR 2SC2021S
Q51	5321663	TRANSISTOR 2SC2021RS
Q602	5321663	TRANSISTOR 2SC2021RS
Q603	5322892	TRANSISTOR 2SA1198RS
Q604	5323561	TRANSISTOR DTC124F
Q605	5323562	TRANSISTOR DTA124F
Q606	5323561	TRANSISTOR DTC124F
Q608	5321298	TRANSISTOR 2SC1740LN-SE
Q704-705	5321663	TRANSISTOR 2SC2021RS
Q706-708	5323561	TRANSISTOR DTC124F
Q710-711	5323561	TRANSISTOR DTC124F
Q901-902	5322732	TRANSISTOR 2SA952-L2
Q904	5321666	TRANSISTOR 2SC2021-SE

SYMBOL-NO	P-NO	DESCRIPTION
Q911-913	5323561	TRANSISTOR DTC124F
ZD101	5331272	ZENER DIODE HZ18-1
ZD102	5330535	DIODE HZ12B-3
ZD103	5330393	ZENER DIODE SILICON HZ6C 1MHZ
ZD104	5330534	ZENER DIODE HZ12A3
ZD105	5330313	ZENNER DIODE HZ-7C
ZD106	5330325	DIODE HZ9A2
ZD201	5330319	ZENER DIODE HZ7B1
ZD481	5330713	DIODE HZ-3B
ZD601	5330396	ZENNER DIODE HZ-6A1
ZD701	5332701	ZENNER DIODE HZT33-02
ZD702	5330392	ZENER DIODE SILICON HZ6C 1MHZ 400MW
		TRANSFORMERS
T401	5260366	BIAS COIL
		COILS
L1	5120567	TRAP COIL
L103	5152337	CHOKE COIL 100UH+-10%
L201	5152337	CHOKE COIL 100UH+-10%
L203	5152342	CHOKE COIL 220UH+-10%
L204	5152349	CHOKE COIL 820MH
L205	5152331	CHOKE COIL 33UH+-10%
L206-207	5152337	CHOKE COIL 100UH+-10%
L208	5152331	CHOKE COIL 33UH+-10%
L209	5152336	CHOKE COIL 82UH+-10%
L210	5152337	CHOKE COIL 100UH+-10%
L211	5152333	CHOKE COIL 47UH+-10%
L212-214	5152337	CHOKE COIL 100UH+-10%
L215-216	5152333	CHOKE COIL 47UH+-10%
L217	5152329	CHOKE COIL 22UH+-10%
L220-221	5152479	CHOKE COIL 0.47MICROH
L401	5150366	HOKE COIL 15MH
L402	5150362	CHOKE COIL
L403	5152099	CHOKE COIL
L405	5120563	TRAP COIL 70KHZ
L51	5159027	CHOCKE COIL 100MH
L701	5152607	CHOKE COIL 100MICRO H
		MISCELLANEOUS
	6671651	HOLDER(HOLE IC)
CE51	5780631	CERAMIC OSCILLATOR 400KHZ
CE701	5780504	XTAL
CE901	5760631	CERAMIC OSCILLATOR 400KHZ
CP201	5123037	TRAP COIL
CP202	5162331	LOW PASS FILTER
CP203	5162333	HIGH PASS FILTER
CP204	5162322	DELAYLINE
CP205	5162341	LOW PASS FILTER
CP206	5123031	TRAP FILTER
CP207	5162353	BAND PASS FILTER

MECHANICAL PARTS

SYMBOL-NO	P-NO	DESCRIPTION
CP208	5162211	LOW PASS FILTER
CP209	5162142	BAND PASS FILTER
DL201	5765213	DELAY LINE
DL202	5785054	DELAY LINE
FU101	5721406	FUSE 125V 2A
FU102	5721409	FUSE 125V 4A
PH101	0249795	POTHISTOR
PH901	0249691	POTHISTOR
PV701	5009082	CHANNEL PRESET RESISTOR
Q141-142	5360132	PHOTO TRANSISTOR PH101
S143-144	5633362	PUSH SWITCH
S601	5624441	SLIDE SWITCH
S701-715	5633911	SWITCH
S717-718	5633911	SWITCH
S719-720	5633911	SWITCH
S721	5633694	SWITCH (AFS)

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
101	6049175	TOP CAVER ASSEMBLY
102	6049031	BOTOM COVER
103	7741444	FELT (LEG)
104	6236302	JACK PANEL
105	6187197	JACK DOOR
106	6235375	FRONT PANEL ASSEMBLY
107	6065661	BUTTON (COUNTER/RESET)
108	6066831	BUTTON (IRT)
109	6066107	BUTTON (F.F/REW/PAUSE)
110	6875331	GUIDE (CH-LED)
111	6275238	CHANNEL CARD
112	6187599	PRESET DOOR ASSEMBLY
113	6075091	KNOB (TRAKING)
114	6F6F[illegible]2	CAP (V.R)
115	6065992	CAP
116	7663073	COVER
117	6644058	CASSETTE DOOR
118	5676425	JACK PLATE(FRONT)
119	5676432	JACK PLATE (REAR)
121	5587041	RF CONVERTER
122	6875441	HOLDER (LED) PT
123	5311061	TIMER DISPLAY
124	6875322	HOLDER (TIMER)
125	6875241	HOLDER (CH LED)
126	6875451	LED HOLDER
127	6875252	COVER (AC CORD)
128	6794091	BUSHING
129	5746492	POWER CORD
130	5213472	POWER TRANSFORMER
132	5722211	FUSE HOLDER
133	55[illegible]6716	VTR FRONTEND
134	65752[illegible]	FF HOLDER
140	7741791	FELT (LEG)
141	7741761	FELT (LEG)
142	7692792	CHANNEL SHEET (C)
142	7692793	CHANNEL SHEET (U)
147	6872031	I/R RECEIVER CAP
148	6577431	COVER
149	7651951	INSULATION SHEAT
202	6414654	SUPPLY REEL ASSEMBLY
203	6414674	TAKE-UP REEL ASSEMBLY
204	7787412	WASHER
207	7778859	POLYSLIDER WASHER
208	6865662	BRAKE ARM
209	7382651	TENSION ARM
210	6865804	BRAKE L
211	6865811	BRAKE R
212	6302471	SPRING
213	6543962	SPRING (T.ARM)

SYMBOL-NO	P-NO	DESCRIPTION
214	7376271	TENSION BAND
215	6873272	SPRING HOLDER (BACK TENSION)
216	7362673	ARM BRAKET ASSEMBLY
217	6875371	F.F/REW ARM ASSEMBLY
218	7376313	LOADING LINK R ASSEMBLY
219	7376313	LOADING LINK L ASSEMBLY
220	6978301	GUIDE ROLLER BASE (I)
221	6978291	GUIDE ROLLER BASE (O)
224	6559481	GUIDE ROLLER
225	6856061	GUIDE ROLLER ASSEMBLY (OUT)
226	7376176	GUIDE BASE HOLDER
227	6577561	CATCHER (SUPPLY)
228	6977571	CATCHER (TAKE-UP)
229	7570671	TAPE GUIDE (I)
230	6304903	SPRING
231	6873332	IMPEDANCE ARM ASSEMBLY
232	5448791	FULL ERASE HEAD
233	6302391	SPRING
234	5447302	ACE HEAD
235	6304906	SPRING
236	7786245	WASHER
237	6865722	SUB BRAKE
238	6300084	SPRING
239	5577903	CAPSTAN MOTOR
240	6865674	RECORDING PREVENTION ARM
241	5433971	SWITCH (S141)
242	7768143	POLYSLIDER WASHER
243	6577611	PRESSURE ROLLER ARM ASSEMBLY
246	6547811	SPRING
247	7549271	X-ADJUST SCREW
248	5625091	SLIDE SWITCH
250	6873291	COLOR
251	7571871	TAPE GUIDE (O)
252	6673721	CAP
253	7382521	HOLDER
254	7380941	HOLDER
255	6877521	COLLAR
301	7395301	CLUTCH PLATE ASSEMBLY
302	6355561	BELT
303	7379664	BRAKE SLIDER
304	6865733	MODE SLIDER
305	6547821	SPRING
306	6566297	LORDING GEAR ASSEMBLY
307	6865791	TENTION ARM
311	7376353	LOADING MOTOR ASSEMBLY
312	6355601	BELT
313	6355591	BELT
314	6977431	FLYWHEEL
315	7786142	POLYSLIDER WASHER (THRUST)
316	7786261	WASHER
317	6357531	BELT
318	6355581	BELT
319	7376323	FLYWHEEL HOLDER
320	6765291	PULLEY
321	7786156	POLYSLIDER WASHER
322	6355561	BELT
323	0249797	HEATER
401	7395283	FRONT LORDING MECHA. ASSEMBLY
404	7382474	CASSETTE HOLDER
405	7382444	LORDING MOTOR ASSEMBLY
406	5997932	FL MOTOR ASSEMBLY
407	7382562	LORDING ARM (L)
408	7382552	LORDING ARM (R)
409	7382571	LOCK ARM
410	6549142	SPRING (LOCK ARM)
412	6873213	DOOR ARM
413	6300722	SPRING (DOOR ARM)
414	6873101	HOLDER
415	7557A91	HOLDER LINK ASSEMBLY
416	6873192	GEAR (L)
417	6873182	LOADING GEAR (R)
418	6877761	LOADING GEAR (L)
419	6873141	LORDING GEAR (R)
420	6543683	SPRING
421	6543684	SPRING
422	6573161	RECORDING PREVENTION ARM
423	6549152	SPRING
424	7382494	CHASSIS HOLDER
501	5458411	UPPER CYLINDER
502	5458422	LOWER CYLINDER ASSEMBLY
503	5792131	BRUSH
504	5792091	STATOR
505	5772601	ROTOR ASSEMBLY
506	5792121	WIRE HOLDER
507	5994731	CYL.FG PCBOARD
901	7781131	B TIGHTING SCREW-3MMDX12MM
902	8699412	BIND TAPPING SCREW-3MMDX12MM(BLACK)
903	8699408	BT BIND HEAD SCREW-3MMDX8MM (BLACK)
904	8671406	BT SCREW-3MMDX6MM
905	8699412	BIND TAPPING SCREW-3MMDX12MM(BLACK)
906	8691412	BT BIND SCREW-3MMDX12MM
907	8671406	BT SCREW-3MMDX6MM
908	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
909	8671408	BT BIND SCREW-3MMDX8MM
910	8691608	SCREW 4X8BT
911	8E15116	LOCK WASHER
950	7541395	SPECIAL SCREW
951	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
952	8741408	SCREW (B3X8)
954	7781133	BT SCREW-3MMD

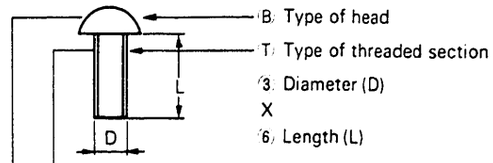
SYMBOL-NO	P-NO	DESCRIPTION
955	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
956	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
959	7773083	SCREW
960	8741408	SCREW (B3X8)
961	7762761	SCREW(P3X8 WITH S.WASHER)
962	M650412	SCREW 3X12 WITH SPRING WASHER
963	8821114	3D NUT
964	8741103	SCREW(2X3B)
965	7781872	SCREW-3MMDX8MM
966	7773086	SCREW
967	6741414	BINDING SCREW - 3MMD X 14MM
968	8821114	3D NUT
969	8741408	SCREW (B3X8)
970	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
971	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
972	8691312	BT BIND SCREW-2.6MMDX12MM
974	7541392	SCREW
975	7781131	B TIGHTING SCREW-3MMDX12MM
976	7782761	SCREW 3X8BT
979	8652412	SCREW 3X12 WITH SPRING WASHER
981	8678405	BT SCREW-3MMDX5MM (BLACK)
982	8811116	4D WASHER
983	7230902	E RING
988	8691410	BT BIND SCREW-3MMDX10MM
989	8691408	BIND TAPPING SCREW-3MMDX8MM (BLACK)
990	8741408	SCREW (B3X8)
991	8741406	BIND SCREW - 3MMD X 6MM
996	8741408	SCREW (B3X8)

SYMBOL-NO	P-NO	DESCRIPTION
		FOR ACCESSARIES
	5631031	WIRELESS REMOTE CONTROL BOX
	5679542	CONNECTOR
	5687572	MATCHING BOX
	5853172	FEEDER CABLE
	5996764	CABLE

EXPLODED VIEWS

SCREW CLASSIFICATION

Example: BT3 - 6



Abbreviation	Name	Shape
No symbol	Brazier head	
P	Pan head	
B	Binding head	
O	Oval countersunk head	
F	Flat countersunk head	

Abbreviation	Name	Shape
No symbol	Machine (clamps without tapping)	
t	Tapping (clamps with tapping) Type 1	
T	Tapping (clamps with tapping) Type 2	
f	Forming tight (for metal)	

Note: Since the forming tight screw tightens while self-tapping machine screws can be replaced by tapping screws.

Washers and Nuts

Abbreviation	Name	Shape
W	Washer	
LW	Spring washer	
LW	Locking washer	
E	E-ring	
N	Nut	

Note: Internal dia is indicated for nuts and washers.

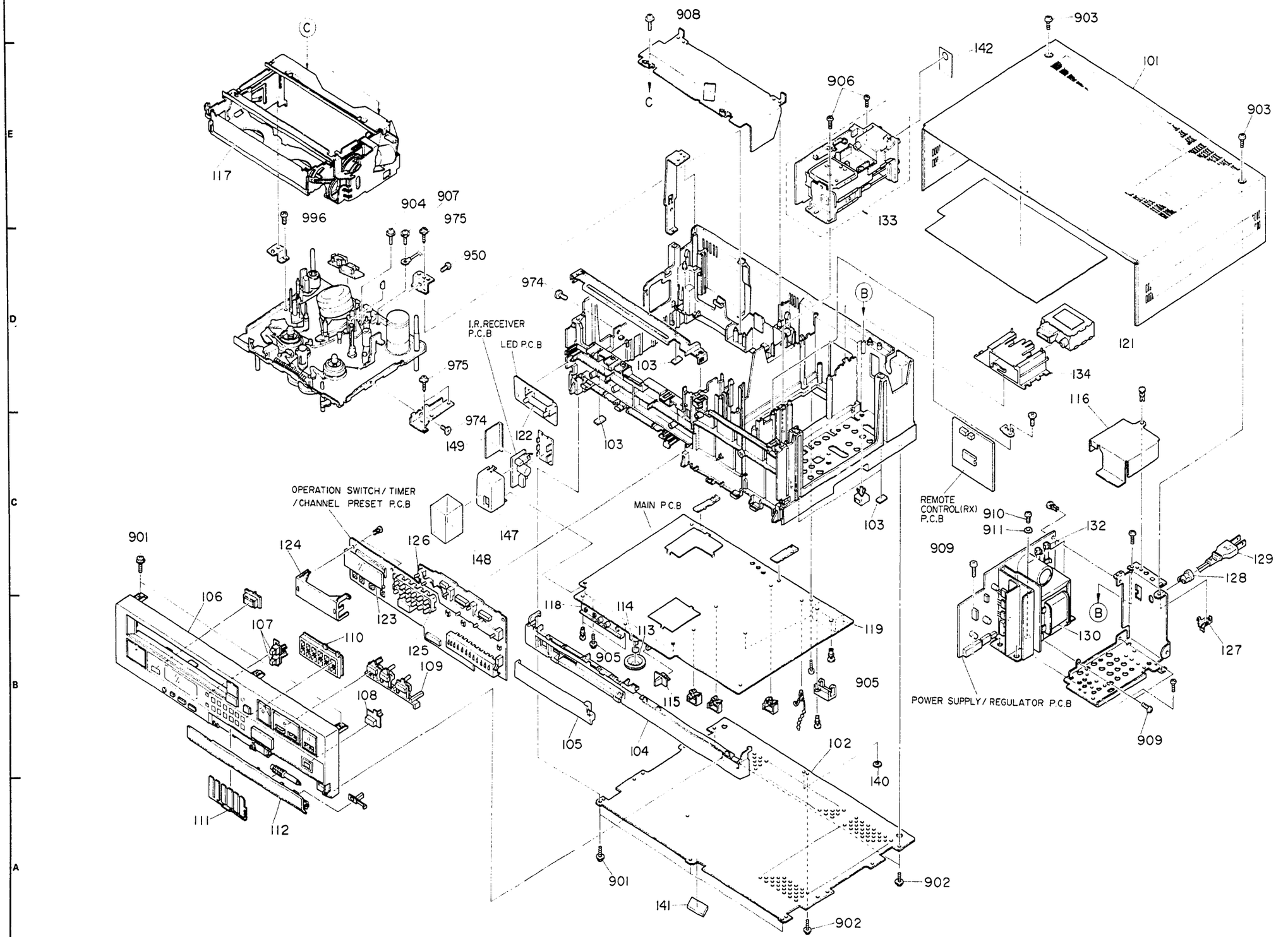
LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks

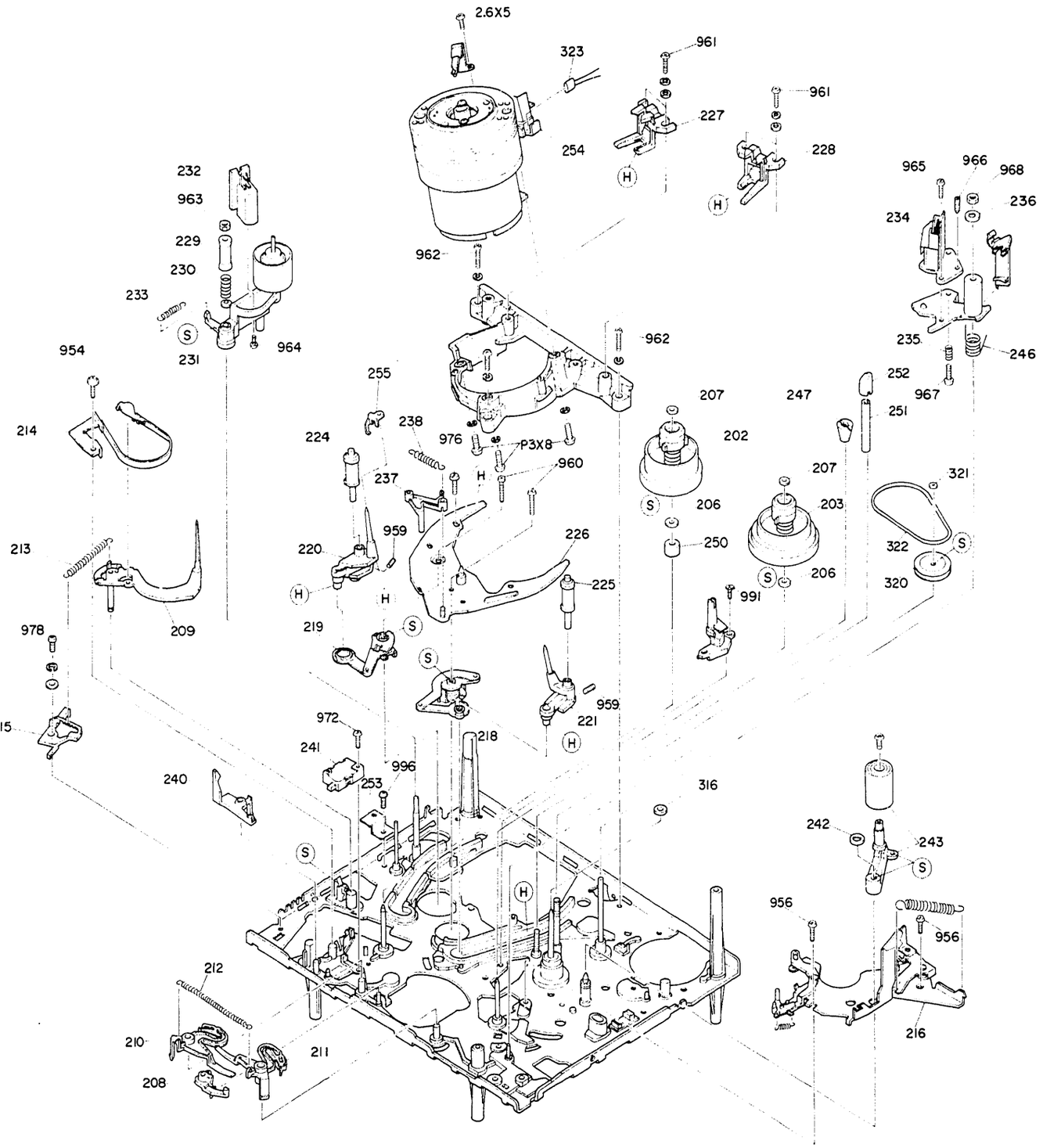
Lubricants shown in the diagram are as follows.

(P) Pan motor oil (≒ 10W-40)
(S) Sonic slider oil (≒ 1600)
(Si) Silicone grese (KS-64)
(H) Hitazol (MO-138)
No symbol Froil (GB-TS-)

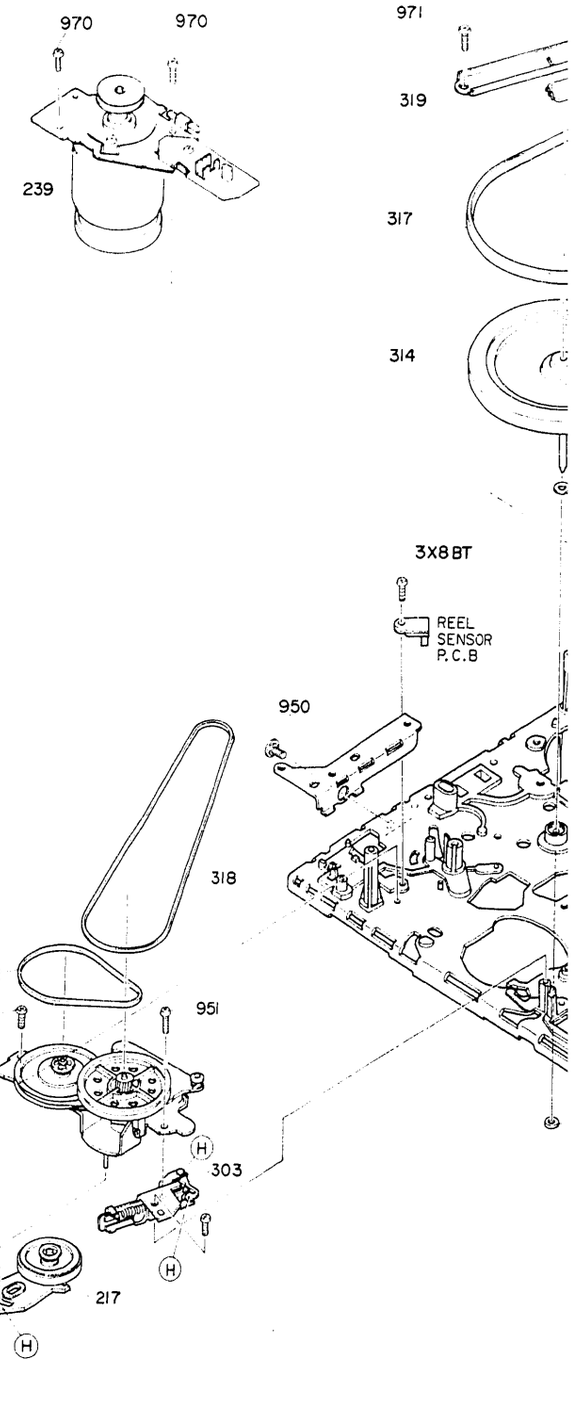
CABINET SECTION



CHASSIS SECTION (I)

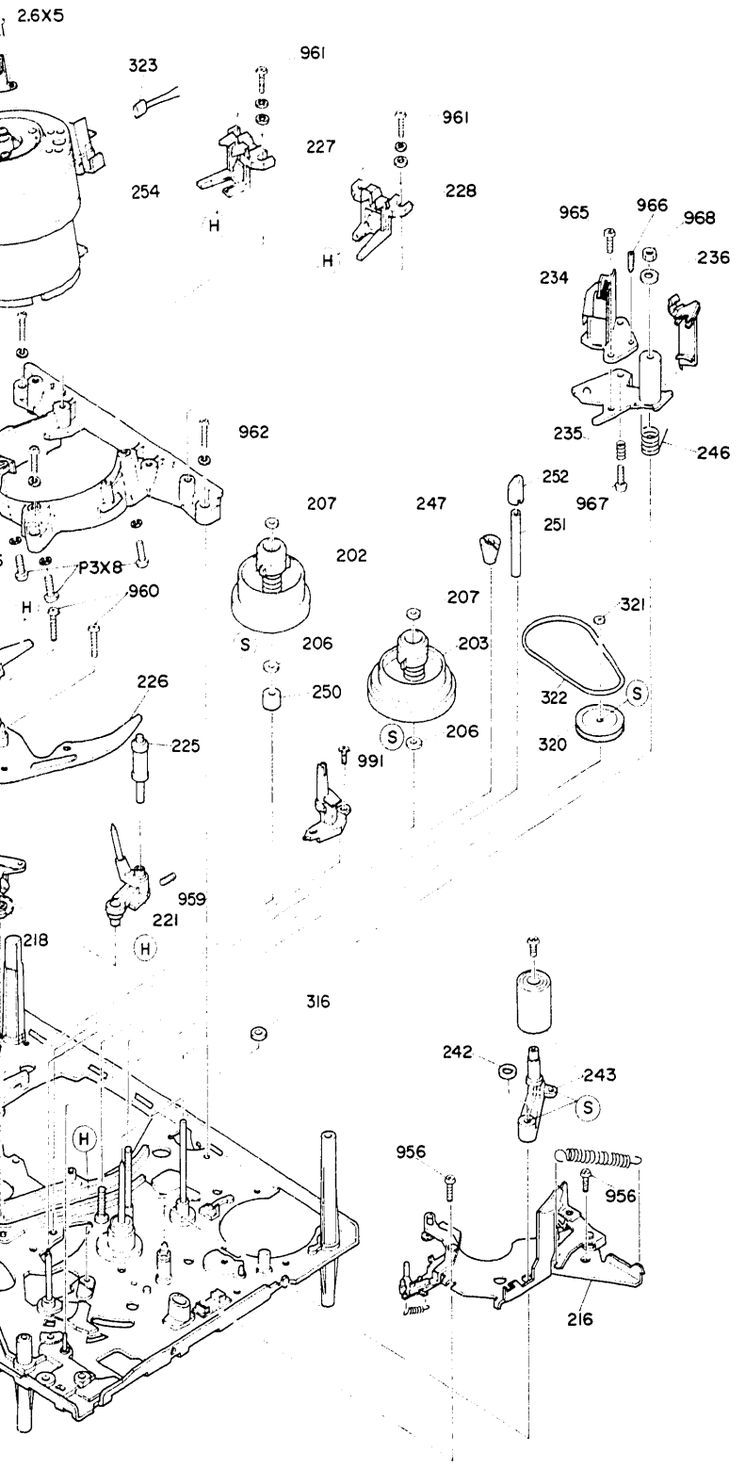


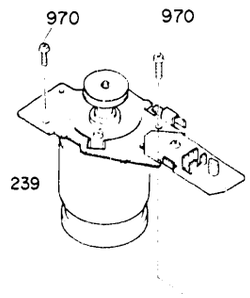
CHASSIS SECTION (II)

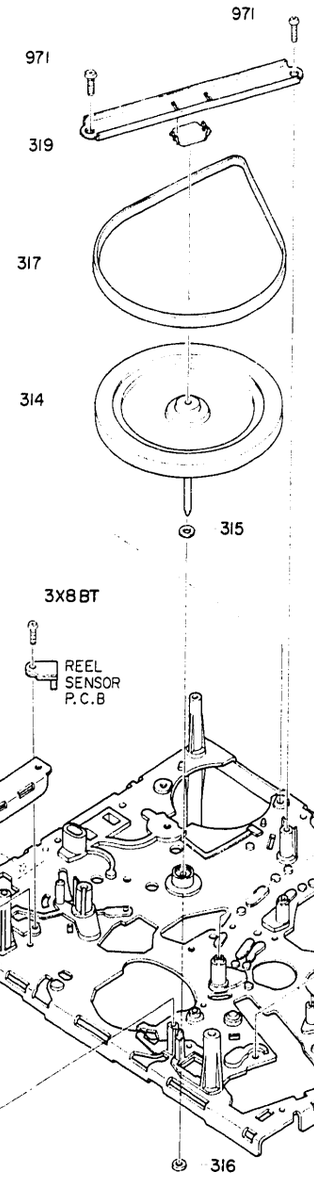


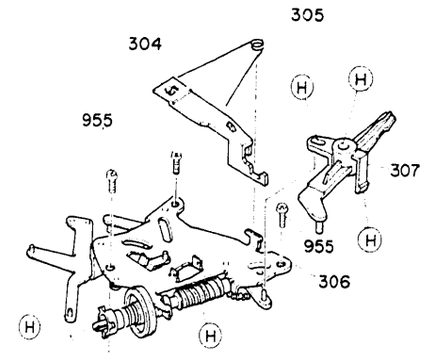
CHASSIS SECTION 101 102 CHASSIS SECTION

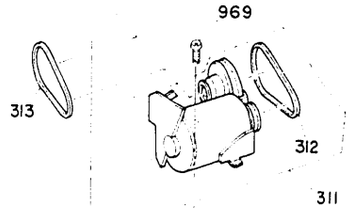
CHASSIS SECTION (II)

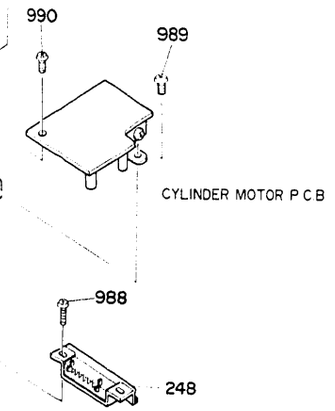


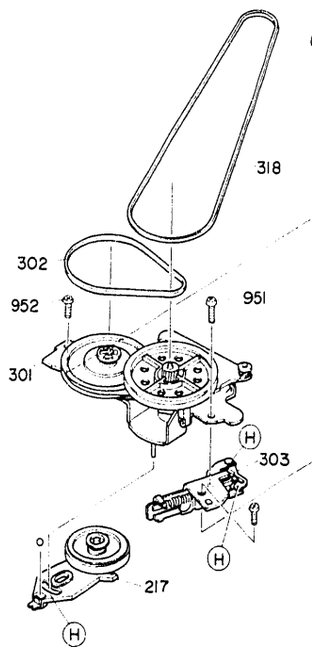








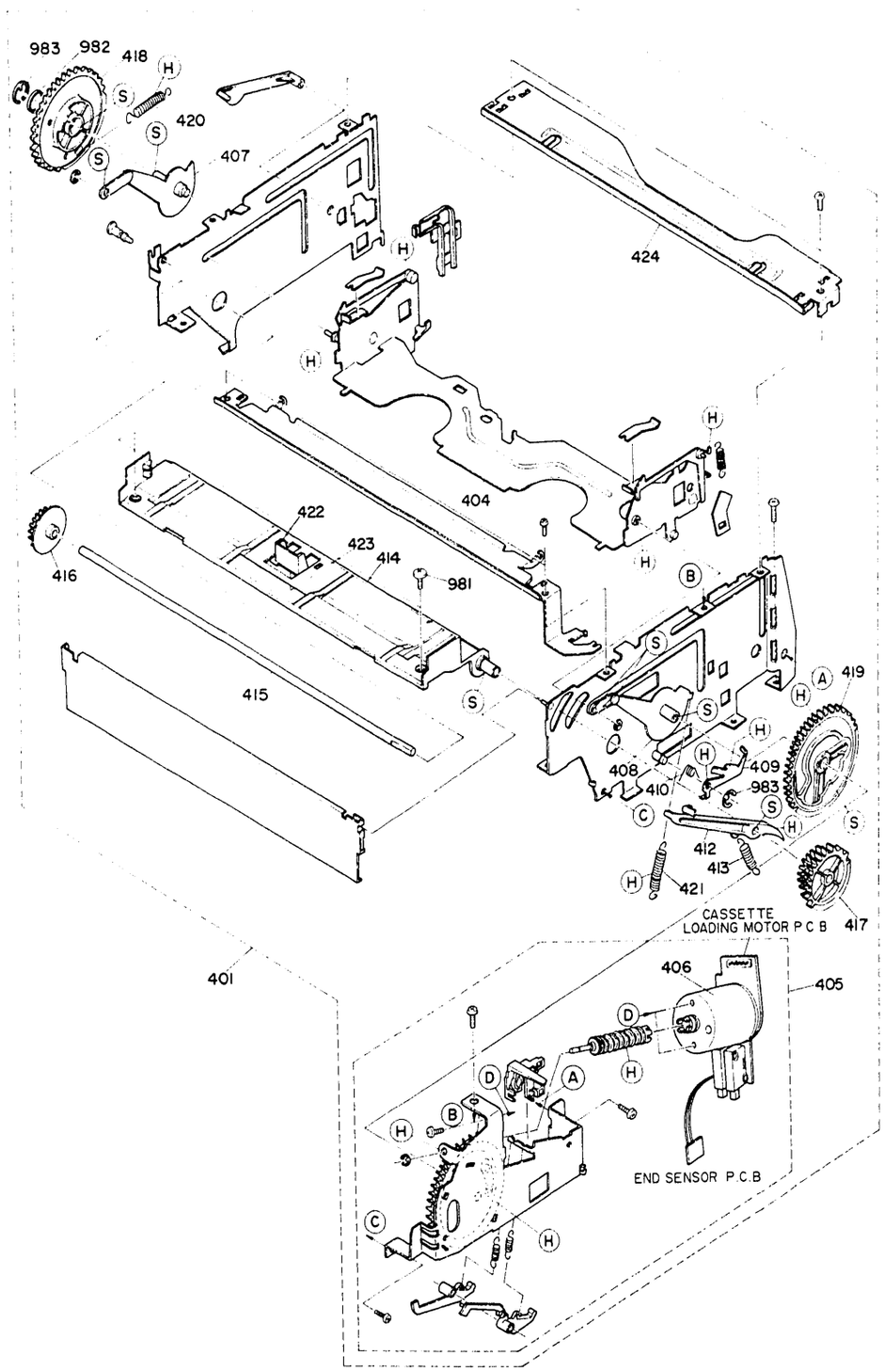




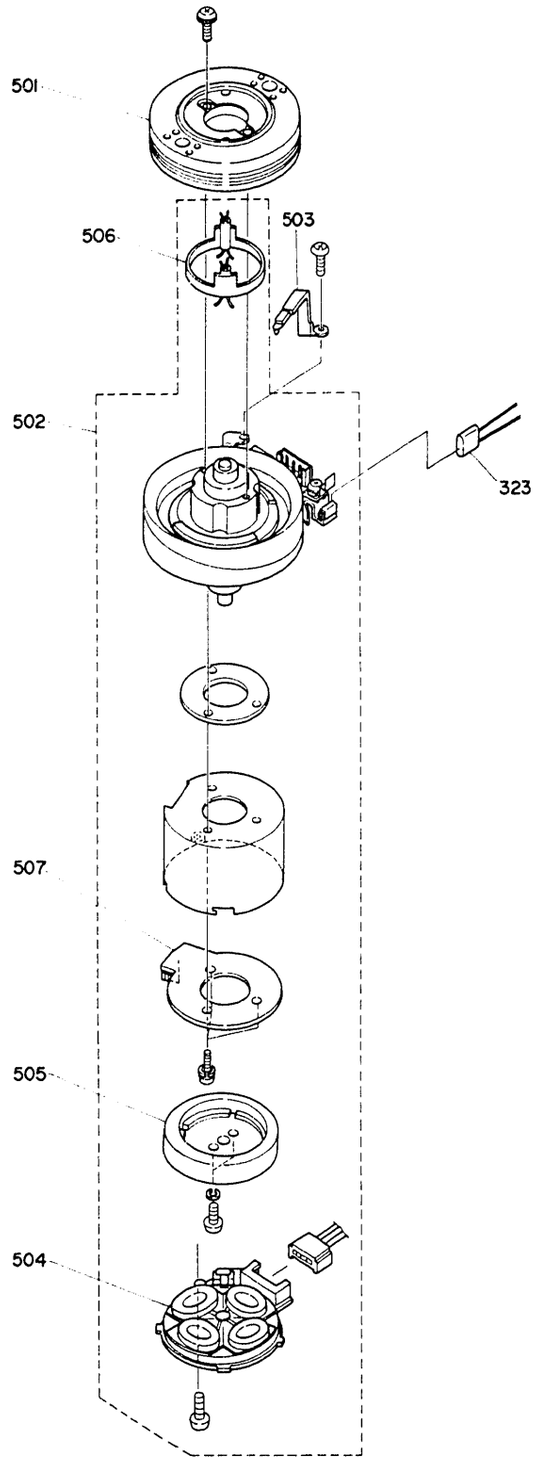
3 4 5 6 7 8 9 10 11 12

CHASSIS SECTION 101 102 CHASSIS SECTION 103

CASSETTE LOADING MECHANISM SECTION



CYLINDER SECTION



IC 201

14	4.2 (4.1)	15	4.3 (4.3)
13	4.6 (4.8)	16	2.5 (1.9)
12	——	17	2.5 (1.9)
11	——	18	0
10	5 (1.5)	19	——
9	4.2 (3.8)	20	4.3 (4.3)
8	0	21	8 (1.9)
7	5 (1.0)	22	0.6 (0.1)
6	4.6 (1.1)	23	0
5	7 (0.1)	24	0.6 (0.1)
4	7 (7.1)	25	0 (0.1)
3	4 (1.4)	26	0 (1.4)
2	0 (0.1)	27	0 (0.5)
1	6 (4.8)	28	0 (0.1)

IC 204

5	6	7	8
0 (4.0 4)	0 (4.0 4)	0 (4.0 4)	8 (4.0 4)
4	3	2	1
0	0 (1.0 4)	0 (1.0)	4 (3.0 5)

IC601

1	12 (11.8)
2	0.6 (1.0)
3	0 (1.0)
4	0
5	0.6 (11.5)
6	6.2 (12.5)
7	9.5 (10.5)

15	16	17
9.5 (10.5)	0.3 (10.3)	0.4 (15.6)
14	13	12
4.2 (14.2)	1.3 (11.3)	0.8 (0.1)

IC 603

	9	10	11	12	13
	5 (11.5)	5 (11.5)	5 (11.5)	5 (11.5)	0 (1.0
18	8	7	6	5	4
0	5 (11.5)	4.7 (14.8)	4.6 (14.6)	4.7 (14.7)	4.7 (4

1	2	3	4	5	6	7	8	
0 (1.0)	0 (1.0)	0 (1.0)	0 (1.0)	0 (1.0)	0 (1.0)	——	——	
64	63	62	61	60	59	58	57	
——	0 (4.7)	4.7 (10.1)	0 (1.0)	0 (1.0)	0 (1.0)	——	——	

IC 902

9	9.8 (9.8)
8	11.3 (11.3)
7	0 (1.0)
6	0 (1.0)
5	0
4	0 (1.0)
3	0 (1.0)
2	11.3 (11.3)
1	9.8 (9.8)

IC 903

9	9.8 (9.8)
8	11.3 (11.3)
7	0 (1.0)
6	0 (1.0)
5	0
4	0 (1.0)
3	0 (1.0)
2	11.3 (11.3)
1	9.8 (9.8)

Q206

B	0 (1.0 8)
C	0 (1.6)
E	0 (1.0)

Q207

B	0 (1.0 8)
C	0 (1.6)
E	0 (1.0)

Q216

B	0 (1.0)
C	0 (1.0)
E	0

Q218

B	6.3 (6.3)
C	9.3 (9.3)
E	6.7 (6.7)

Q228

B	9.4 (8.7)
C	5.4 (9.3)
E	9.4 (9.4)

Q401

B	0 (6.3)
C	0 (0.1)
E	0

Q409

B	7 (1.0)
C	0 (1.9.2)
E	0

Q410

B	0 (10.2)
C	9.5 (8.3)
E	0 (1.0.4)

Q902

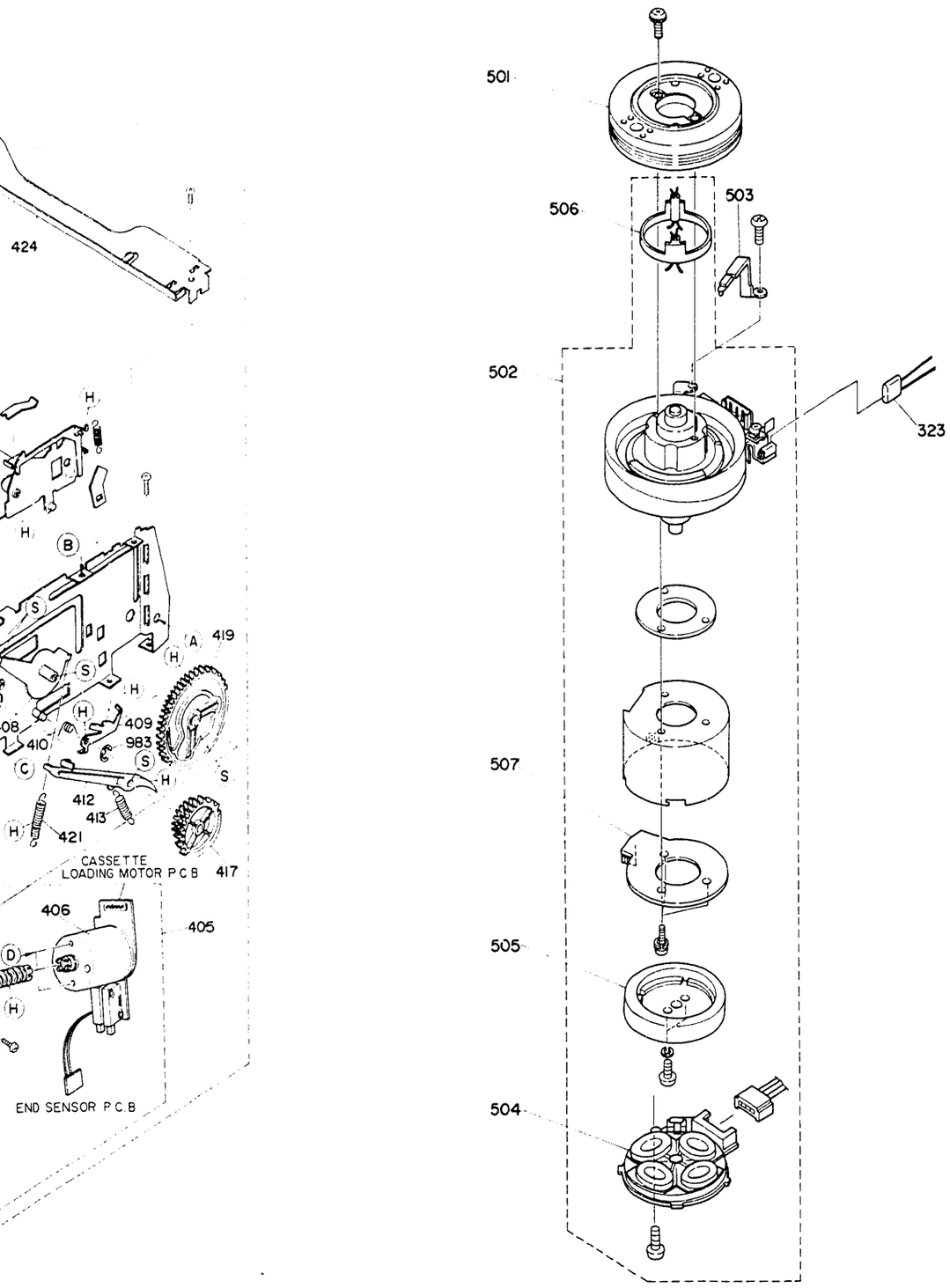
B	8.7 (9.5)
C	9.5 (1.0)
E	9.5 (9.5)

Q904

B	2.6 (2.6)
C	1.9 (1.9)
E	1.8 (1.8)

* VOLTAGES ARE MEASURED

CYLINDER SECTION



IC 201

14	4.2(4.1)	15	9.3(9.3)
13	9.6(8.8)	16	2.5(1.9)
12	——	17	2.5(1.9)
11	——	18	0
10	5.1(5.1)	19	——
9	4.2(3.8)	20	9.3(9.3)
8	0	21	8.1(9.2)
7	5.1(0.2)	22	0.6(0.1)
6	4.6(4.1)	23	0
5	7.(0)	24	0.6(0.1)
4	7.(7)	25	0.(0.1)
3	4.1(4.1)	26	0.1(4.9)
2	0.(0.1)	27	0.1(0.5)
1	6.4(8)	28	0.(0.1)

IC 203

28	5.4(4.4)	1	0.(0.1)
27	6.5(6.3)	2	0.(0.1)
26	1.4(0.8)	3	2.1(2.1)
25	4.1(4.)	4	0.(7.8)
24	——	5	3.6(3.5)
23	0.(0.)	6	0.1(9.4)
22	——	7	5.1(5.1)
21	0	8	4.4(7.2)
20	5.4(5.2)	9	9.2(9.2)
19	5.4(5.2)	10	5.4(9.3)
18	5.4(5.2)	11	7.2(7.2)
17	5.4(5.4)	12	7.(7.)
16	0.(0.)	13	5.5(5.5)
15	1.6(1.6)	14	0

IC202

1	2	3	4	5	6	7	8	9	10	11	12	13	14
6.2(6.2)	5.7(5.6)	0.4(0.4)	0.1(.5)	8.(8.8)	9.5(0.4)	9.3(9.3)	3.9(5.3)	3.9(5.3)	0	0.9(0.)	0	8.(8.8)	3.3(1.8)
28	27	26	25	24	23	22	21	20	19	18	17	16	15
8.4(6.2)	.1(1.)	0	6.3(6.6)	0.1(0.)	3.3(5.7)	3.6(3.1)	4.6(4.7)	8.6(9.3)	4.4(7.2)	3.8(4.)	3.1(1.)	5.1(5.6)	

IC 204

5	6	7	8
0.4(0.4)	0.4(0.4)	0.4(0.4)	8.4(0.4)
4	3	2	1
0	0.1(0.4)	0.1(0.)	4.3(0.5)

IC401

1	2	3	4	5	6	7	8	9
(2.1) 2.1	0.6(0.6)	0.1(0.)	4.1(4.1)	0	9.2(9.2)	0.5(0.5)	0.1(0.)	0.1(0.)
18	17	16	15	14	13	12	11	10
0.6(0.6)	0.1(0.)	0.1(0.3)	9.2(9.2)	8.1(0.1)	0.2(3.8)	0.2(1.5)	0.1(0.9)	4.5(4.5)

IC402

12	11	10	9	8	7	6	5	4	3	2	1
0	0.1(0.2)	0.1(0.)	8.1(0.1)	8.1(0.)	7.1(0.)	9.5(0.4)	0.1(9.4)	0.1(0.6)	0	9.4(9.4)	0.1(6.3)

IC601

1	12.(1.8)	
2	0.6(0.)	
3	0.1(0.)	
4	0	
5	0.6(1.5)	
6	6.2(2.5)	
7	9.5(9.5)	

IC602

15	16	17	18	19	20	21	22	23	24	25	26	27	28
9.5(9.5)	0.3(0.3)	0.4(5.6)	0.9(0.9)	0	0.1-0.9	0	0	0	2.3(2.3)	5.4(5.4)	0	0.1(0.)	4.6(4.6)
14	13	12	11	10	9	8	7	6	5	4	3	2	1
4.2(4.2)	1.3(1.3)	0.8(0.1)	0.1(0.)	1.4(1.4)	2.2(2.3)	——	0.1(0.)	0.1(8.7)	2.4(2.4)	2.4(2.4)	2.6(2.4)	0.1(0.)	4.6(4.6)

IC603

	9	10	11	12	13	14	15	16	
	5.1(5.1)	5.1(5.1)	5.1(5.1)	5.1(5.1)	0.1(0.)	4.6(4.6)	0.1(0.)	9.5(9.5)	
18	8	7	6	5	4	3	2	1	17
0	5.1(5.)	4.7(4.8)	4.6(4.6)	4.7(4.7)	4.7(4.7)	4.4(4.4)	3.1(3.1)	4.6(4.6)	4.6(4.6)

IC604

	9	10	11	12	13	14	15	16	
	5.1(5.)	5.1(5.)	5.1(5.)	5.1(5.)	4.4(4.4)	4.7(4.7)	4.7(4.7)	9.5(9.5)	
18	8	7	6	5	4	3	2	1	17
0	5.3(5.3)	4.7(4.7)	4.4(4.4)	4.8(4.8)	5.1(5.)	4.9(4.9)	3.4(3.4)	4.8(4.8)	4.7(4.7)

IC901

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	——	——	——	0.1(0)	0.1(0)	4.1(4.1)	0.1(0)	9.2(9.2)	0.1(0)	0.1(0)	3.3(3.3)	7.3(7.2)	9.4(5.)	0.1(0)	0.1(0)	——	0.1(0)	0	——	0.1(0)	0	0	6.4(6.1)	6.6(6.2)	4.8(4.8)	6.8(6.8)
64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
——	0.9(7.)	4.7(0.)	0.1(0)	0.1(0)	0.1(0)	——	——	——	0.1(0)	0.1(0)	0.1(0)	0.1(0)	9.2(9.2)	- 1.-1	4.3(4.3)	4.3(4.3)	0.1(0)	3.9(8.8)	0.1(0)	-1.-1	0.1(0)	0.1(0)	——	——	——	9.7(9.7)	0.1(0)	0.5(0.5)	0.5(0.5)	9.7(9.7)	9.6(9.6)

IC902

9	9.8(9.8)
8	11.3(11.3)
7	0.1(0)
6	0.1(0)
5	0
4	0.1(0)
3	0.1(0)
2	11.3(11.3)
1	9.8(9.8)

IC903

9	9.8(9.8)
8	11.3(11.3)
7	0.1(0)
6	0.1(0)
5	0
4	0.1(0)
3	0.1(0)
2	11.3(11.3)
1	9.8(9.8)

IC904

1	2	3	4	5	6	7	8	9	10
0	3.4(3.4)	7.4(7.4)	4.4(4.3)	4.(4.)	7.5(1.5)	0	4.(4.)	7.4(7.4)	9.8(9.8)

Q201

B	0.1(0)
C	0.1(0)
E	0

Q202

B	0.3(0.3)
C	0.1(0)
E	0

Q203

B	4.7(4.7)
C	9.4(9.3)
E	4.1(4.1)

Q204

B	0.1(0)
C	0.1(9.4)
E	0

Q205

B	2.2(2.4)
C	6.6(5.3)
E	2.3(3.4)

Q206

B	0.1(0.8)
C	0.6(0.)
E	0.1(0.)

Q207

B	0.1(0.8)
C	0.6(0.)
E	0.1(0.)

Q208

B	0.7(0.2)
C	0.1(9.3)
E	0

Q209

B	0.1(4.6)
C	9.4(9.3)
E	0.1(4.2)

Q211

B	2.1(0.)
C	8.1(0.4)
E	1.4(0.)

Q212

B	6.2(6.2)
C	0
E	6.8(6.8)

Q213

B	8.1(8.8)
C	0
E	8.6(9.3)

Q214

B	0.1(0.)
C	9.3(9.3)
E	0.1(0.)

Q215

B	7.2(7.2)
C	0.3(1.1)
E	7.8(7.9)

Q216

B	0.1(0.)
C	0.1(0.)
E	0

Q218

B	6.3(6.3)
C	9.3(9.3)
E	6.7(6.7)

Q219

B	6.7(6.7)
C	9.3(9.3)
E	6.1(6.)

Q221

B	4.6(4.6)
C	9.2(9.2)
E	4.1(4.)

Q222

B	2.7(2.6)
C	9.4(9.3)
E	2.1(2.)

Q223

B	5.(6.)
C	9.4(9.3)
E	5.4(5.3)

Q225

B	8.7(8.7)
C	9.4(9.4)
E	9.5(9.5)

Q226

B	0.7(0.7)
C	0.3(0.3)
E	0

Q227

B	3.1(1.1)
C	7.1(8.9)
E	2.4(0.4)

Q228

B	9.4(8.7)
C	5.4(9.3)
E	9.6(9.4)

Q401

B	0.1(6.3)
C	0.-1(0)
E	0

Q402

B	0.1(0)
C	0.1(0)
E	0

Q403

B	9.6(8.8)
C	0.1(0)
E	0

Q404

B	0.1(0)
C	0.1(0)
E	0

Q405

B	0.1(0)
C	0.1(0)
E	0

Q406

B	0.7(-4.8)
C	0
E	0(-7.3)

Q407

B	0.7(-4.8)
C	0.1(0)
E	0(-7.3)

Q408

B	8.5(9.2)
C	9.2(-4.8)
E	9.2(9.2)

Q409

B	7.1(0)
C	0.1(9.2)
E	0

Q410

B	0.1(0.2)
C	9.5(8.3)
E	0.1(0.4)

Q602

B	0.1(0)
C	9.5(9.5)
E	0.1(0)

Q603

B	8.4(8.9)
C	0.1(0)
E	8.4(8.9)

Q604

B	8.2(8.2)
C	0.1(0)
E	0

Q605

B	9.4(0)
C	0.1(0)
E	9.5(0)

Q606

B	0.1(0)
C	1.8(1.8)
E	0

Q608

B	0.1(0)
C	9.4(0)
E	0

Q901

B	9.5(8.7)
C	0.1(9.5)
E	9.5(9.5)

Q902

B	8.7(9.5)
C	9.5(0)
E	9.5(9.5)

Q904

B	2.6(2.6)
C	7.9(1.9)
E	1.8(1.8)

Q911

B	0(9.7)
C	9.5(0)
E	0

Q912

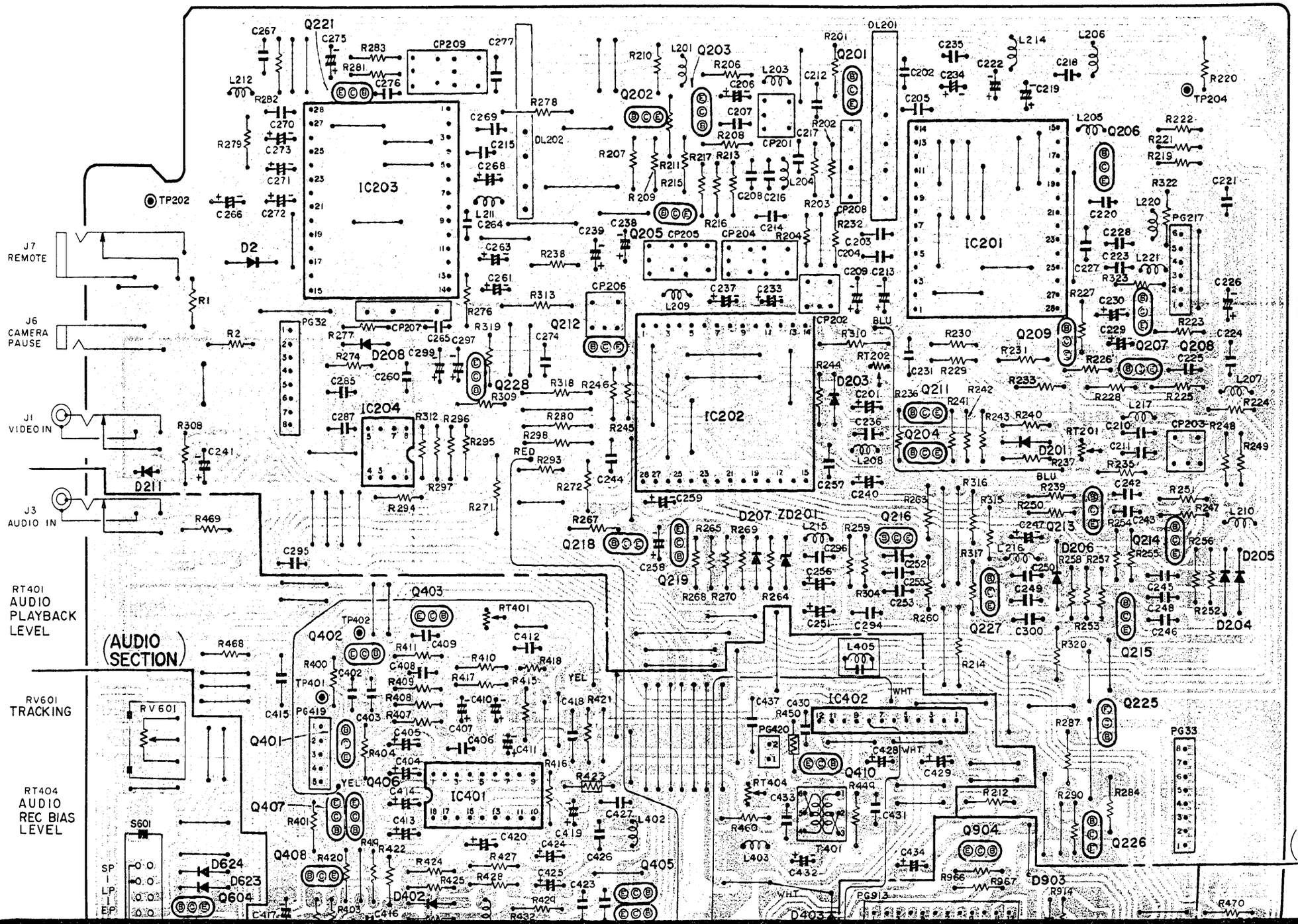
B	9.7(0)
C	0(9.5)
E	0

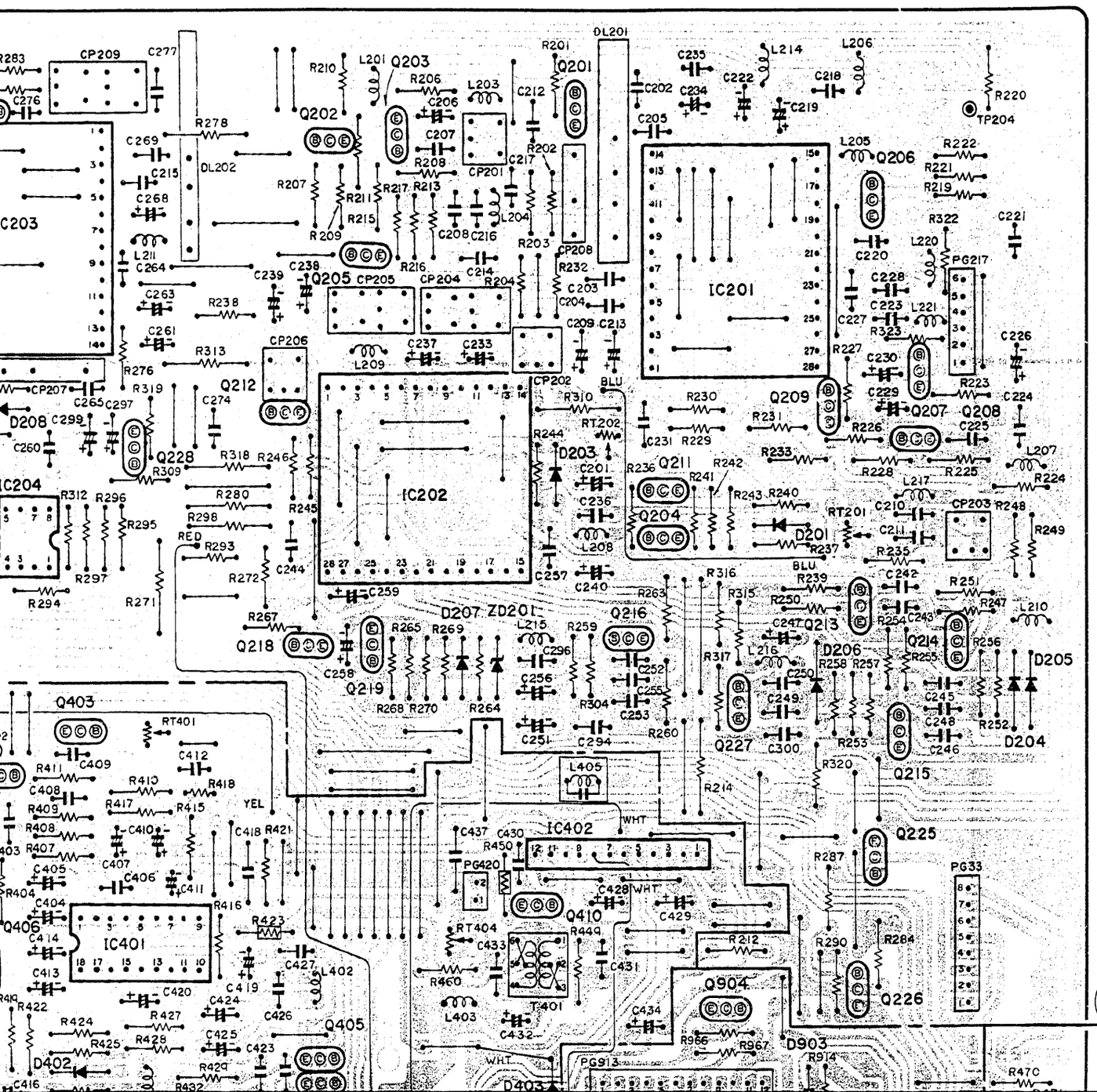
Q913

B	0.1(0)
C	0(9.5)
E	0

* VOLTAGES ARE MEASURED IN PLAY MODE AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

MAIN P.C.B


TP202
J7 REMOTE
J6 CAMERA PAUSE
J1 VIDEO IN
J3 AUDIO IN
RT401 AUDIO PLAYBACK LEVEL
RV601 TRACKING
RT404 AUDIO REC BIAS LEVEL
(AUDIO SECTION)
RT202 REC CHROMA LEVEL
RT201 REC Y LEVEL
(Y/CHROMA SECTION)
IC203
IC204
IC202
IC201
IC401
IC402
Q221
Q203
Q202
Q201
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q214
Q215
Q216
Q217
Q218
Q219
Q220
Q225
Q226
Q227
Q228
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q410
Q604
Q904
D2
D201
D202
D203
D204
D205
D206
D207
ZD201
D208
D211
D623
D624
D902
D903
TP204
TP401
TP402
S601
SP
LP
EP
RED
YEL
BLU
WHT



RT202
REC
CHROMA
LEVEL

RT201
REC Y
LEVEL

(Y/CHROMA SECTION)

PG32

1	GND
2	VIDEO
3	GND
4	AUDIO
5	12V
6	A18V
7	VTR 9V
8	GND

To
TUNER / IF
PG751
VIA
CN32

PG33

8	VIDEO
7	GND
6	——
5	AUDIO
4	GND
3	——
2	VTR 9V
1	GND

To
RF CONVERTER
PG1C
VIA
CN33

PG217

6	CH-1 REC
5	CH-1 PB
4	GND
3	GND
2	CH-2 PB
1	CH-2 REC

To
VIDEO
HEAD

PG419

1	PLAY
2	GND
3	RECORD
4	GND
5	AUDIO ERASE

To
AUDIO CONTROL
HEAD

PG420

2	FULL ERASE
1	GND

To
FULL ERASE

PG902

6	STOP
5	F.FWD/REW
4	REC PAUSE
3	REC/PB
2	REV
1	GND

To
MECH. STATE
SENSOR
PG102
VIA
CN2

PG904

1	——
2	A10V
3	NO TAB

To
SAFETY TAB SW
PG104
VIA
CN4

PG906

1	END LED
2	GND

To
END LAMP
CN6

PG907

1	A12V
2	T. REEL
3	GND

To
REEL SENSOR
CN7

PG909

1	GND
2	LOADING
3	UNLOADING

To
LOADING MOTOR
PG9
VIA
CN9

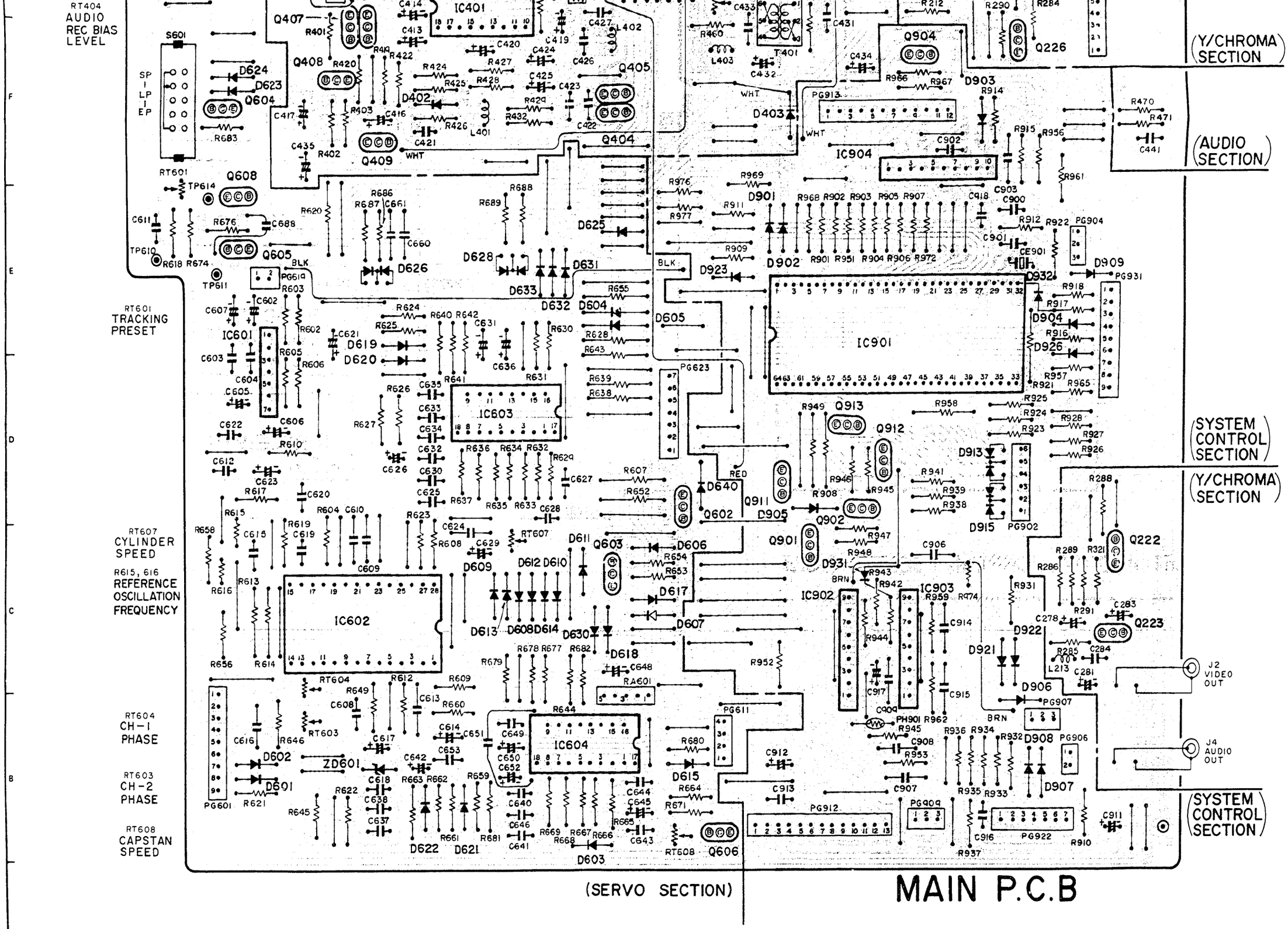
PG912

1	A18V
2	16V
3	12V
4	A12V
5	9.5V
6	GND
7	RESET
8	POWER SW ON
9	SEARCH

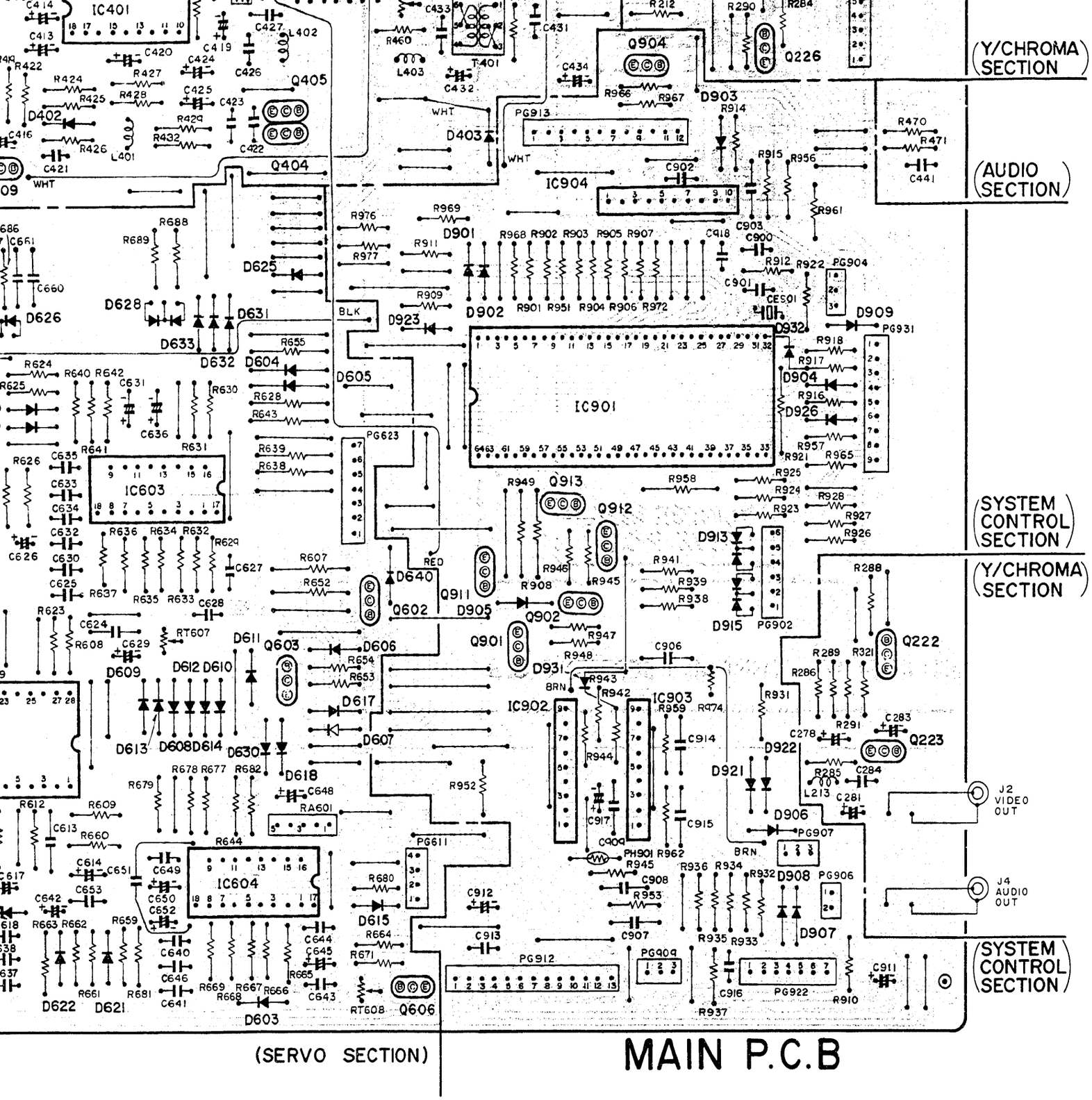
PG931

1	SAFETY
2	TV/VTR
3	C. REVERSE
4	TIME REC
5	M. STOP
6	CH-UP
7	REC/PAUSE
8	REEL
9	PLAY

To
OPERATION / TIMER /
CHANNEL PRESET
PG731
VIA
CN31


RT404
AUDIO
REC BIAS
LEVEL
RT601
TRACKING
PRESET
RT607
CYLINDER
SPEED
R615, 616
REFERENCE
OSCILLATION
FREQUENCY
RT604
CH-1
PHASE
RT603
CH-2
PHASE
RT608
CAPSTAN
SPEED
(SERVO SECTION)
(Y/CHROMA SECTION)
(AUDIO SECTION)
(SYSTEM CONTROL SECTION)
(Y/CHROMA SECTION)
(SYSTEM CONTROL SECTION)
J2
VIDEO
OUT
J4
AUDIO
OUT
IC401
IC601
IC602
IC603
IC604
IC901
IC902
IC903
IC904
Q226
Q222
Q223
Q901
Q902
Q903
Q904
Q905
Q906
Q907
Q908
Q909
Q911
Q912
Q913
D901
D902
D903
D904
D905
D906
D907
D908
D909
D915
D922
D926
D931
D932

MAIN P.C.B


(Y/CHROMA SECTION)
(AUDIO SECTION)
(SYSTEM CONTROL SECTION)
(Y/CHROMA SECTION)
(SYSTEM CONTROL SECTION)
(SERVO SECTION)
IC401
IC901
IC902
IC903
IC904
IC603
IC604
Q904
Q226
Q405
Q404
Q913
Q912
Q911
Q602
Q902
Q901
Q603
Q606
Q222
Q223
D903
D901
D902
D909
D932
D904
D926
D913
D915
D905
D931
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D907
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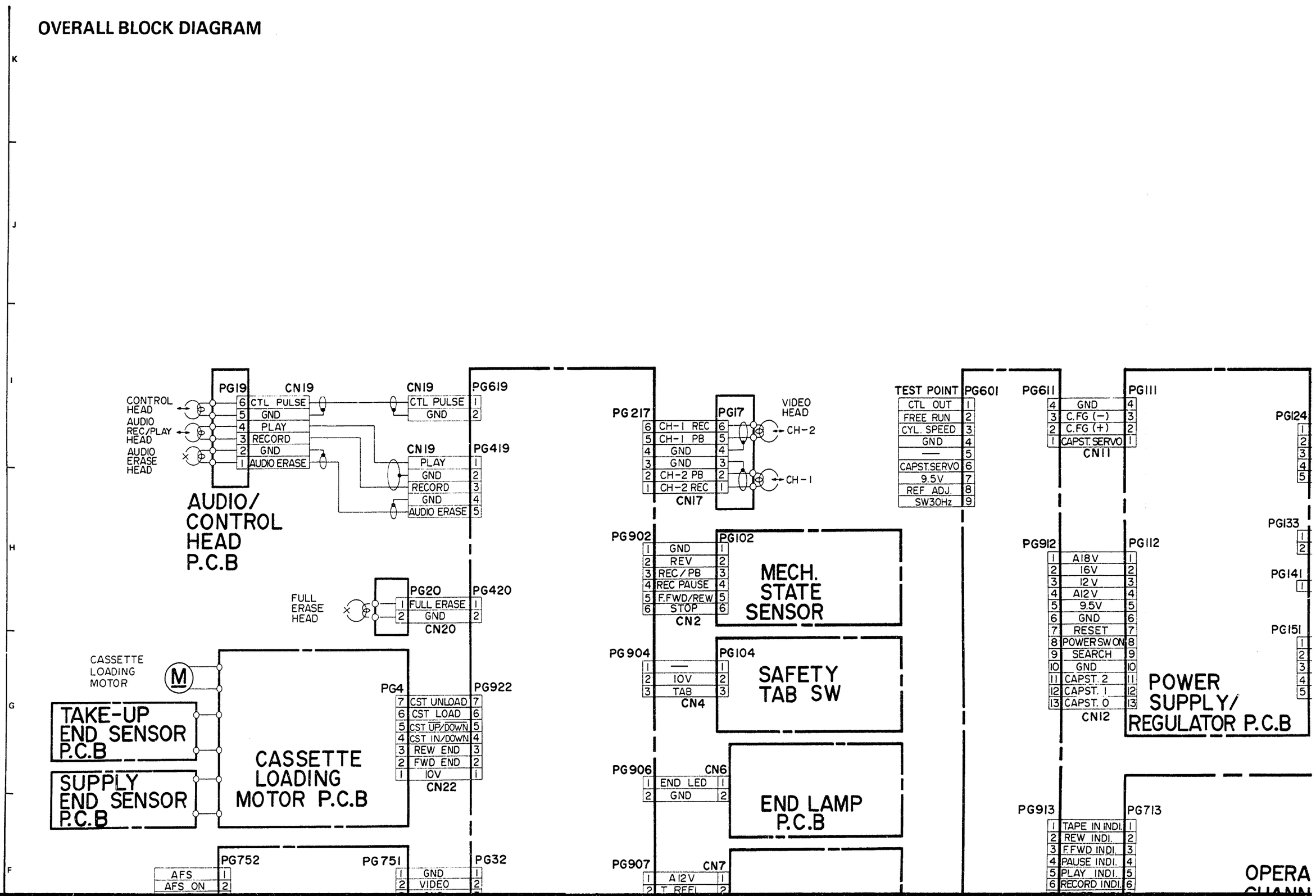
D662

OVERALL BLOCK DIAGRAM



SCHEMATIC DIAGRAM	PAGE
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SYSTEM CONTROL	74
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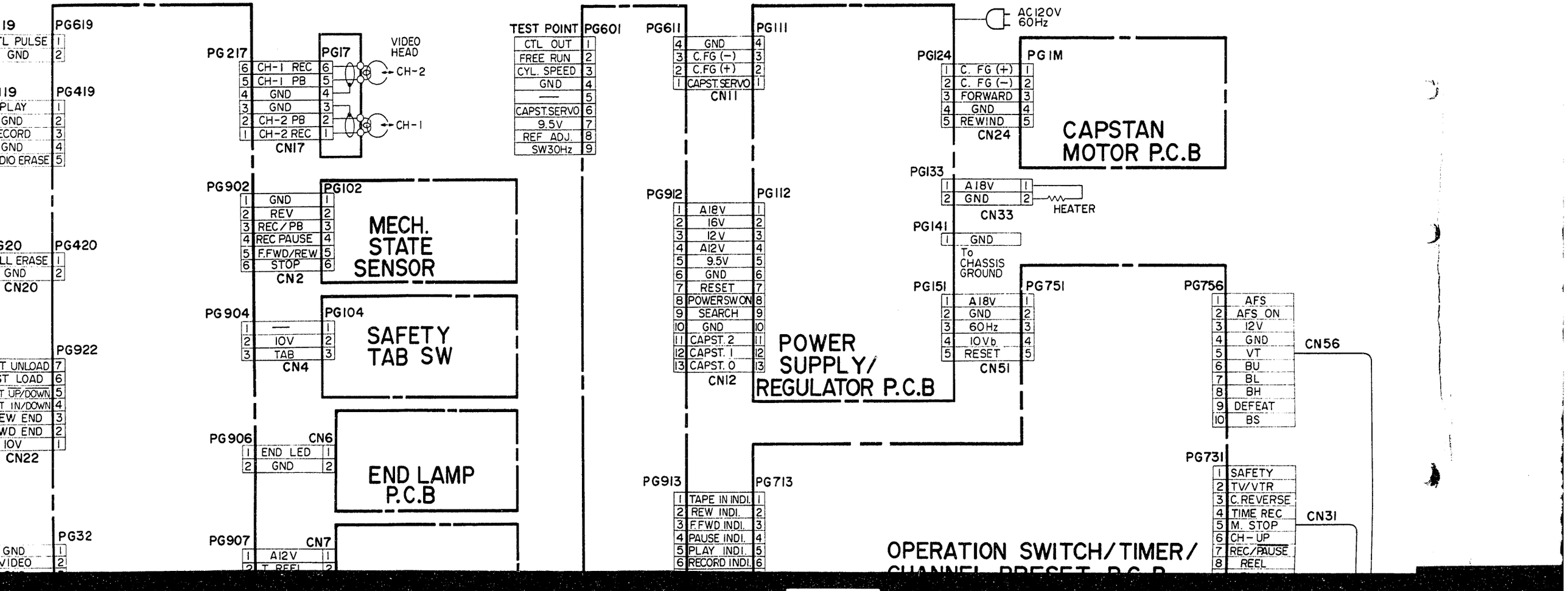
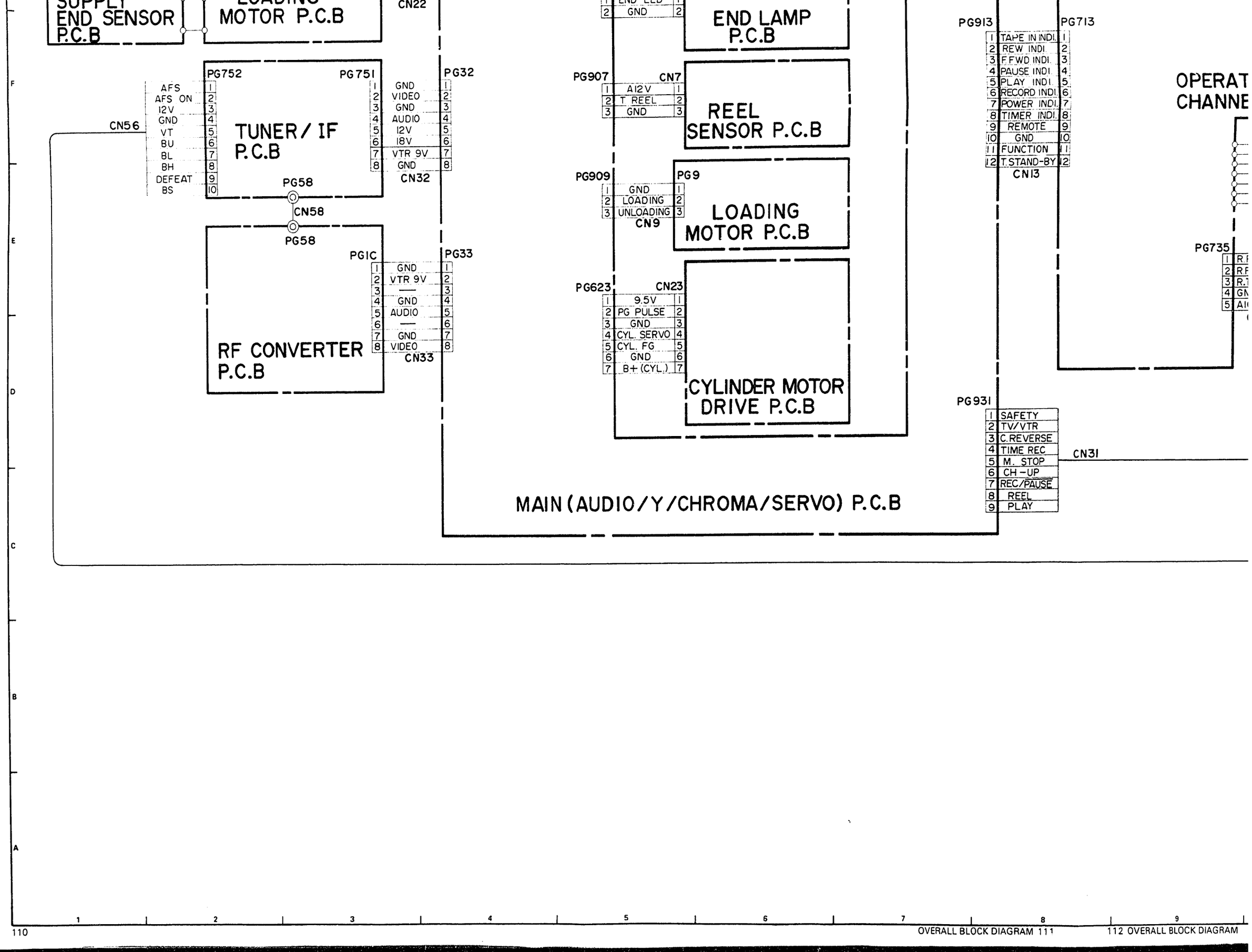
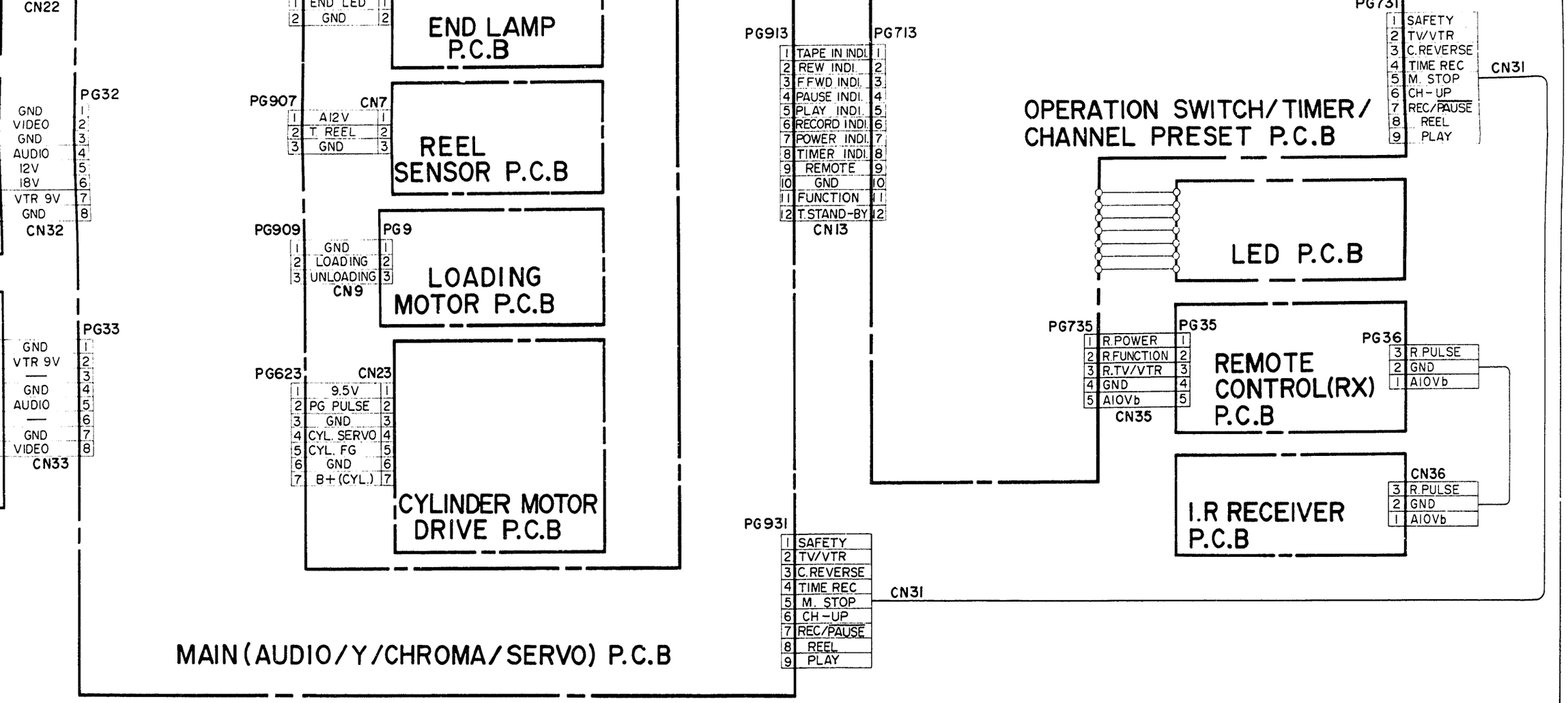



SUPPLY
END SENSOR
P.C.B
LOADING
MOTOR P.C.B
CN22
PG752
PG751
PG32
AFS
AFS ON
12V
GND
VT
BU
BL
BH
DEFEAT
BS
CN56
TUNER / IF
P.C.B
GND
VIDEO
GND
AUDIO
12V
18V
VTR 9V
GND
CN32
PG58
CN58
PG58
PG1C
PG33
RF CONVERTER
P.C.B
GND
VTR 9V
GND
AUDIO
GND
VIDEO
CN33
GND
GND
END LAMP
P.C.B
PG907
CN7
A12V
T REEL
GND
REEL
SENSOR P.C.B
PG909
PG9
GND
LOADING
UNLOADING
CN9
LOADING
MOTOR P.C.B
PG623
CN23
9.5V
PG PULSE
GND
CYL. SERVO
CYL. FG
GND
B+ (CYL.)
CYLINDER MOTOR
DRIVE P.C.B
PG913
PG713
TAPE IN INDI.
REW INDI.
F.FWD INDI.
PAUSE INDI.
PLAY INDI.
RECORD INDI.
POWER INDI.
TIMER INDI.
REMOTE
GND
FUNCTION
T.STAND-BY
CN13
OPERAT
CHANNE
PG735
PG931
SAFETY
TV/VTR
C.REVERSE
TIME REC
M. STOP
CH-UP
REC/PAUSE
REEL
PLAY
CN31
MAIN (AUDIO/Y/CHROMA/SERVO) P.C.B


CN22
PG32
GND 1
VIDEO 2
GND 3
AUDIO 4
12V 5
18V 6
VTR 9V 7
GND 8
CN32
PG33
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GND 4
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6
GND 7
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CN7
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R.FUNCTION 2
R.TV/VTR 3
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PG35
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PG36
R.PULSE 3
GND 2
A1OVb 1
CN36
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M. STOP 5
CH-UP 6
REC/PAUSE 7
REEL 8
PLAY 9
CN31

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